

1071-7

USES FOR IRON

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under the first classification it is ordinarily desirable to specify the cheapest material available; however when considering installations that fall into the second classification the problem of selecting the materials to be specified is of paramount importance. This fact is recognized by both executives and engineers since it has such a direct bearing on maintenance and repair charges.

The piping system in an industrial plant is an excellent example of one type installation where it is desirable to maintain the cost per year of service at as low a figure as possible. In most plants the piping system has an important bearing on operating efficiency and maintenance charges because failures in pipe lines may cause delays in production and frequently necessitate expensive replacements. When we consider that the average plant piping system involves a great variety of services such as water lines, heating lines, power system piping, lines handling process solutions, gas and air lines, refrigeration system piping and numerous others, and that in each of these services the pipe is subjected to a different set of corrosive conditions, it is obvious that for the most economical installation the piping material specified must be selected on the basis of its durability or lasting qualities, rather than on the basis of its first or warehouse floor cost.

With the wide variation in corrosive conditions normally found in actual service, it is obvious that no one metal can be expected to serve most economically and with the

greatest degree of satisfaction, if used for all purposes. This has been definitely proved by actual experience and, therefore, it is necessary to select the metal that will withstand the operating conditions successfully. Intelligent selection of the proper material implies on the part of the engineer a thorough understanding of the corrosive conditions encountered and a good working knowledge of the relative durability of the metals available.

Today the metals most commonly used in modern construction work are steel and wrought iron. It is not the purpose of this discussion to give the technical details regarding the chemical and physical make-up and data on the relative durability of these materials, because information of that type would be of interest primarily to technicians only.

However, it should be stated that wrought iron differs both chemically and physically from all other metals. It is the oldest of all the ferrous metals and its most outstanding characteristics are (1) resistance to corrosion, and (2) resistance to fatigue failure caused by shock or constant vibration. These characteristics make wrought iron a highly desirable metal for a wide variety of uses in industry where durability or long life under severe conditions is an important consideration.

For almost a quarter of a century prior to 1930, pipe was the principal wrought iron product available in commercial quantities. However, since the development and installation of modern manufacturing facilities by

A. M. Byers Company, wrought iron plates, sheets, structurals and numerous other products have been reintroduced to the market on a commercial basis.

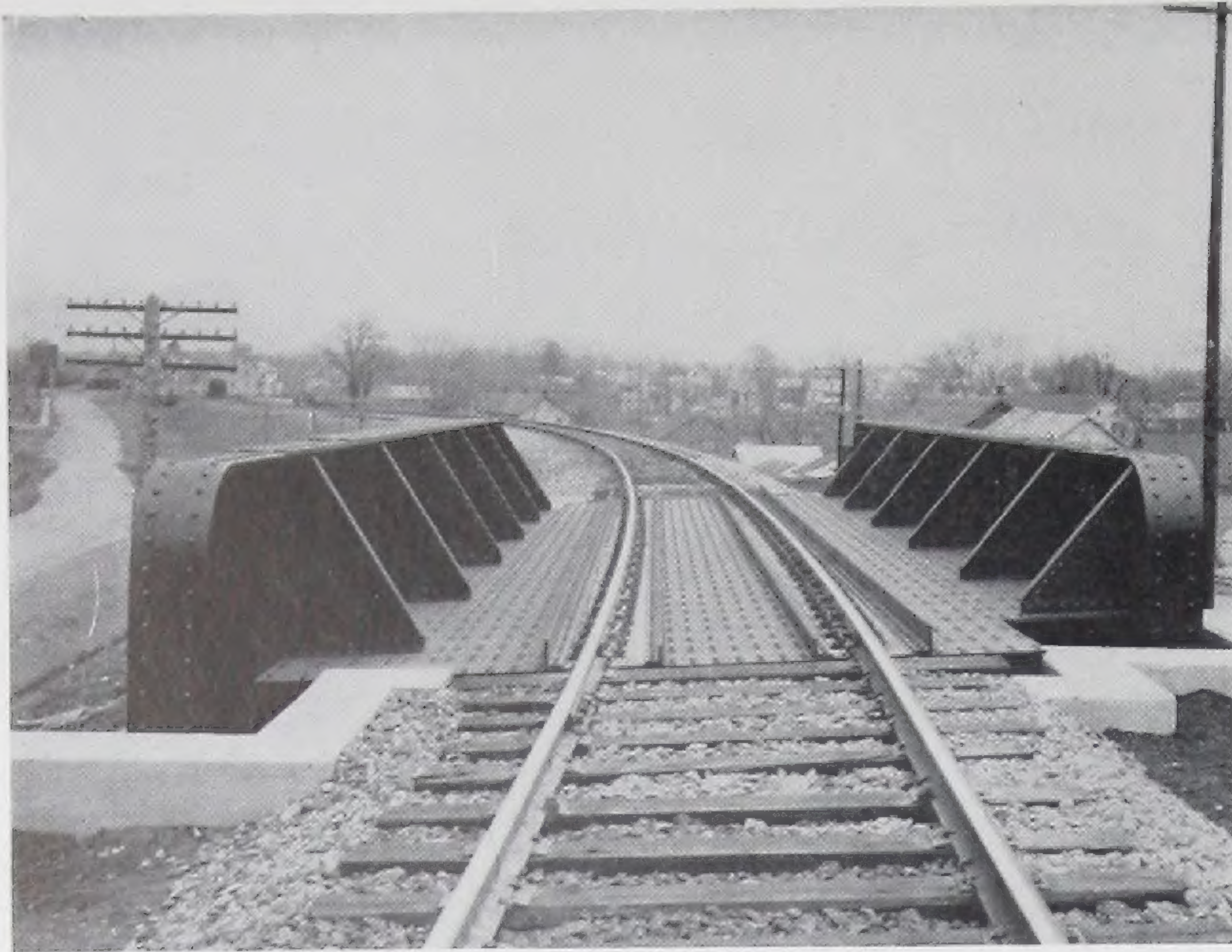
During the past five years, wrought iron products have come into use for a greater number of applications in all branches of industry than ever before. This is attributed partly to the fact that the economy of specifying wrought iron has been established through its use in a large number of services over a long period of years. And, after all, actual service over a long period of time provides the only reliable indication of the durability of any metal—manufacturers' claims and accelerated test data notwithstanding.

Another factor that has a direct bearing on the constantly broadening use of wrought iron products is the comparatively small increase in first or initial cost of a wrought iron installation over that of a similar installation using the cheapest material available. In some instances when materials are being considered, the costs of those materials on the warehouse floor are compared and the decision as to which one will be used is made on that basis. Obviously, such a comparison does not give a true picture of relative costs because in either case the fixed charges, which include transportation, labor and overhead, must be added to the cost of material before the installation is completed and ready to operate. These added costs for fabrication and installation frequently amount to as much as, or more than the cost of material

alone. Therefore, it is apparent that where the cost of materials under consideration for use in construction or maintenance work is but a fraction of the initial or replacement cost of the entire installation, then the relative durability of those materials assumes the position of major importance in making the final decision as to which one will be used.

Those who are interested in obtaining detailed information on some specific application or applications for wrought iron products may secure it by writing direct to the Engineering Service Department, A. M. Byers Company, Pittsburgh, Pa. That department serves as a clearing house for information on wrought iron products and their applications to problems involving corrosion, fatigue, current design trends, and fabrication. On certain of the services for which there has been a great demand for detailed data regarding the use of wrought iron the necessary information has been published in report form. For other services, reports are prepared at the time the request is made in order to meet the individual requirements.

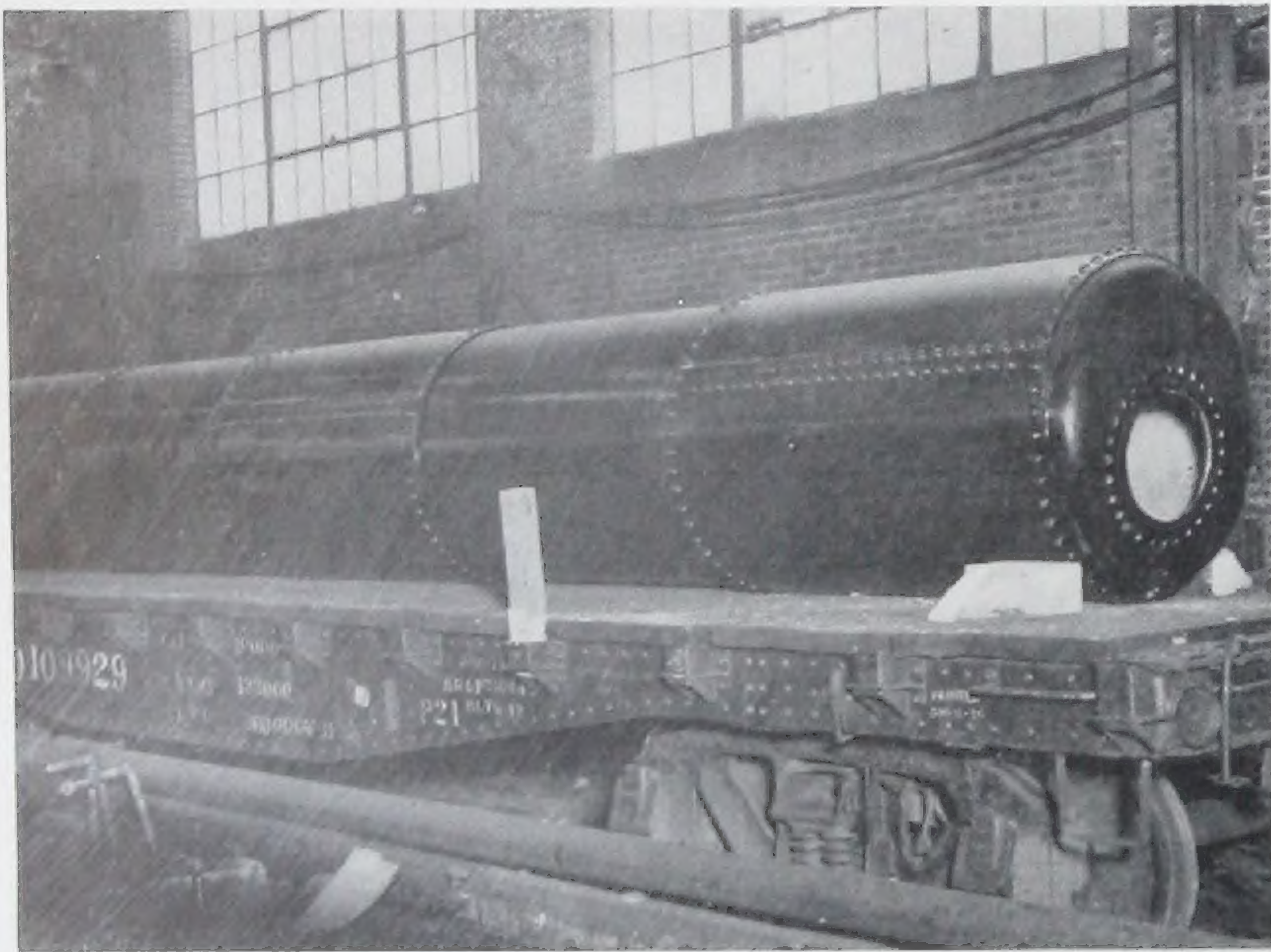
A. M. Byers Company has been a leading producer of the highest quality wrought iron products for more than 70 years. During that time, it is only natural that we should have developed a sound working knowledge of the material and its applications in the various branches of industry. That knowledge is made available, without charge, to specifiers and users of materials through the Engineering Service Department.



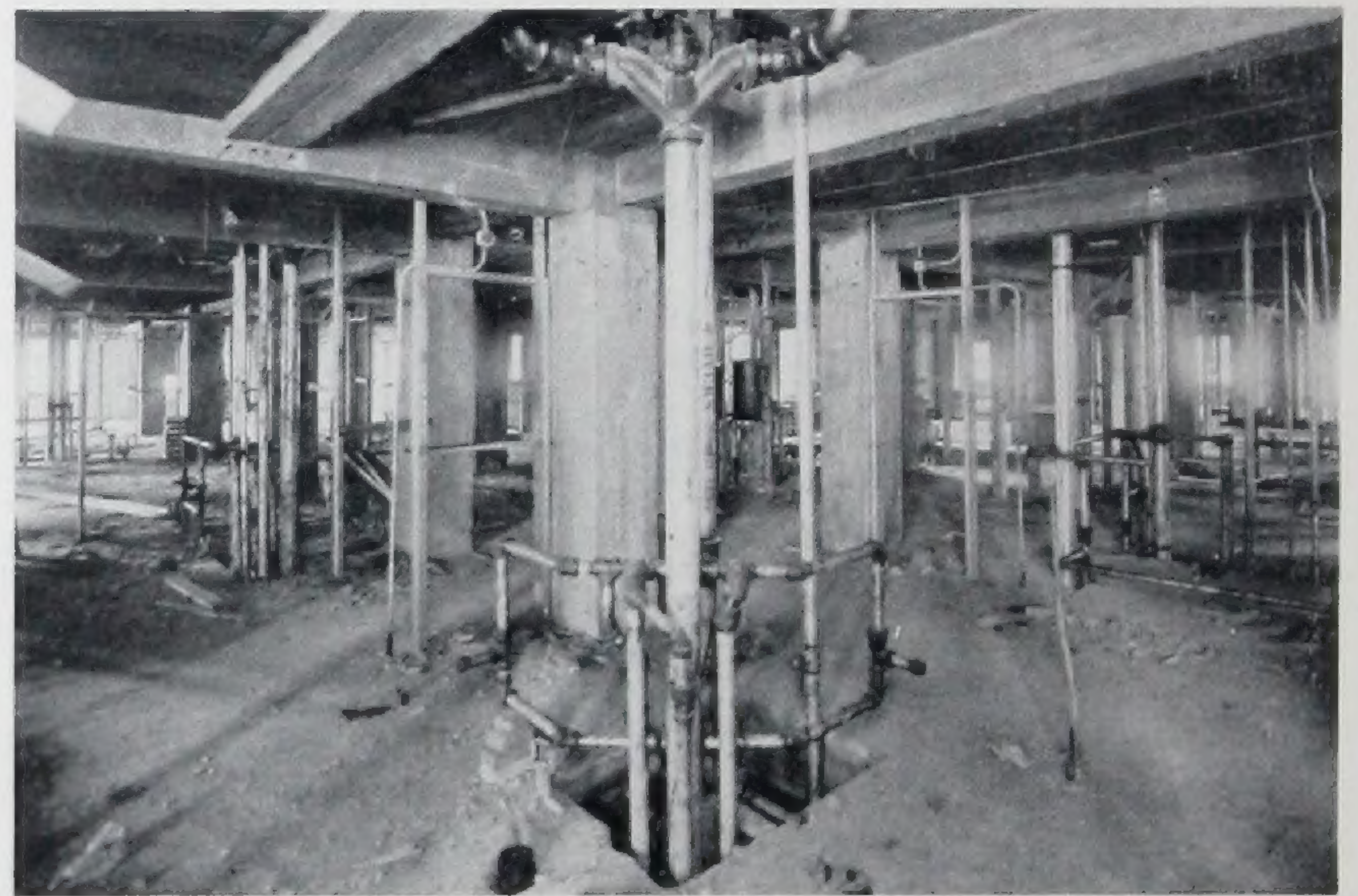
Wrought iron floor plates on a Western Maryland Railroad bridge at Thurmont, Maryland.



All water lines and the gas, oil, and air lines under concrete at this service station in New Orleans, Louisiana, were installed using wrought iron pipe.



Blow case constructed of wrought iron plates and rivets for the Phelps-Dodge Corporation, Douglas, Arizona.



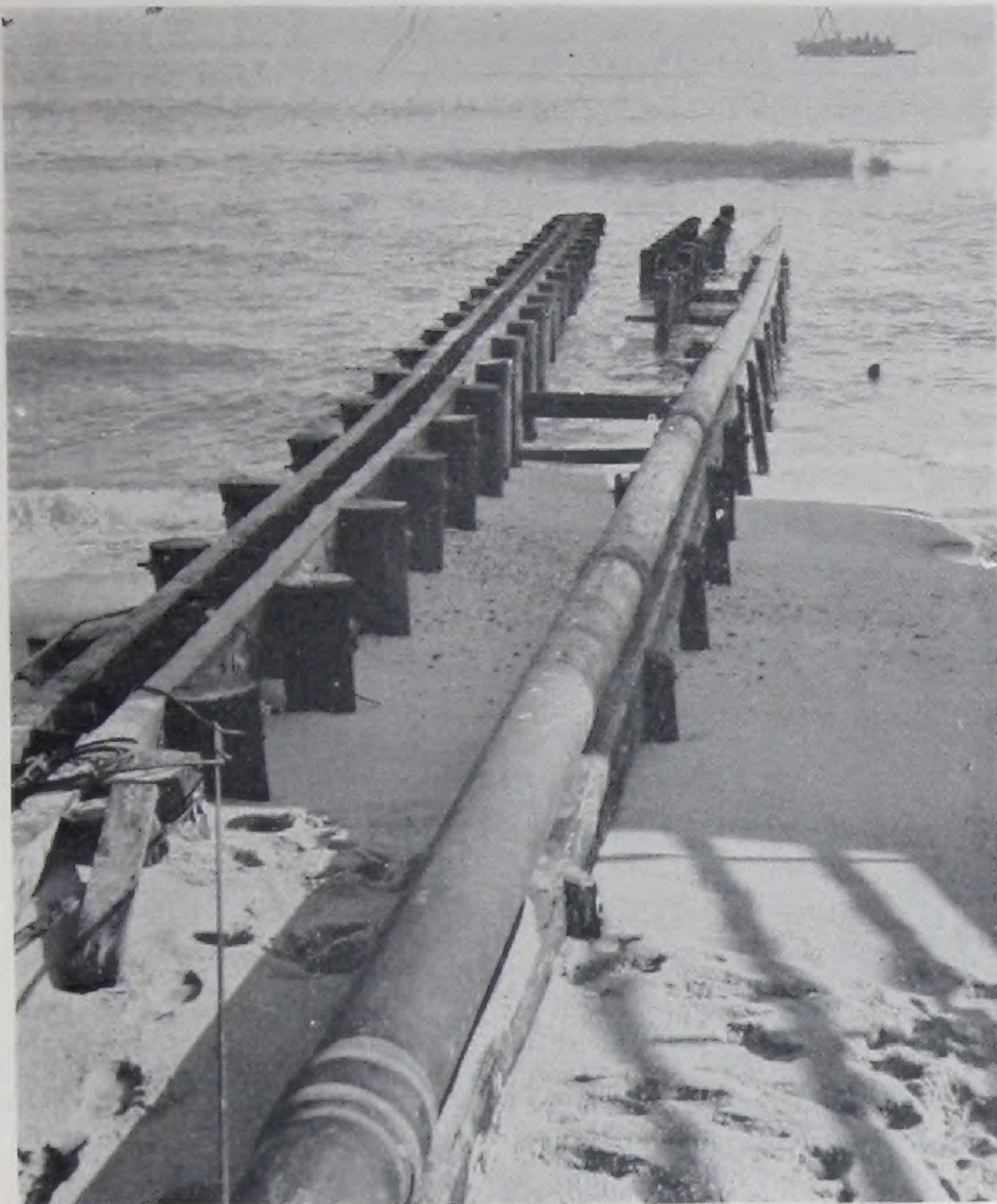
Installing wrought iron pipe for the plumbing and heating systems in a large commercial building.



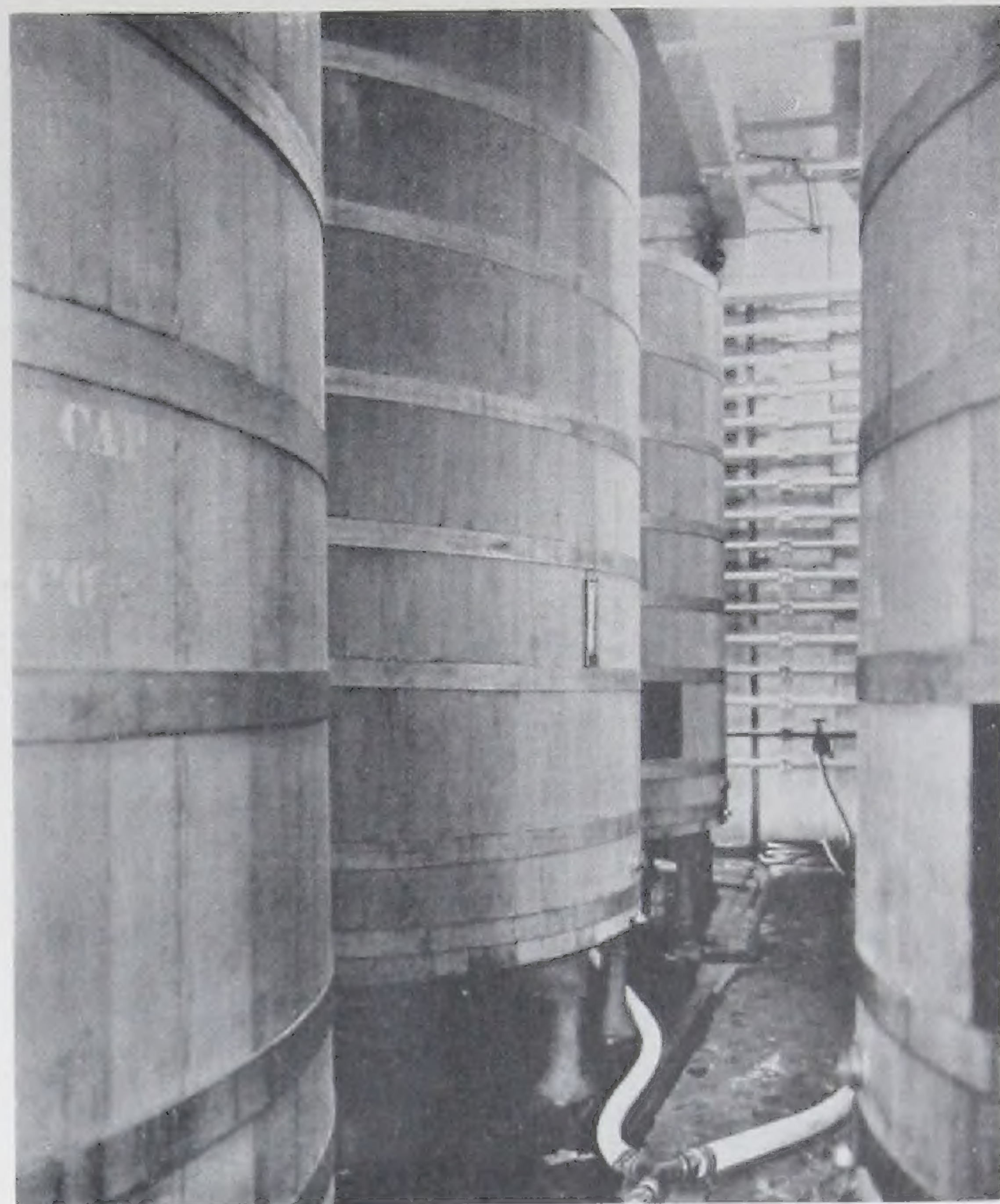
Locomotive watering troughs, built of wrought iron, on the main line of the New York Central Railroad at Silver Creek, New York.



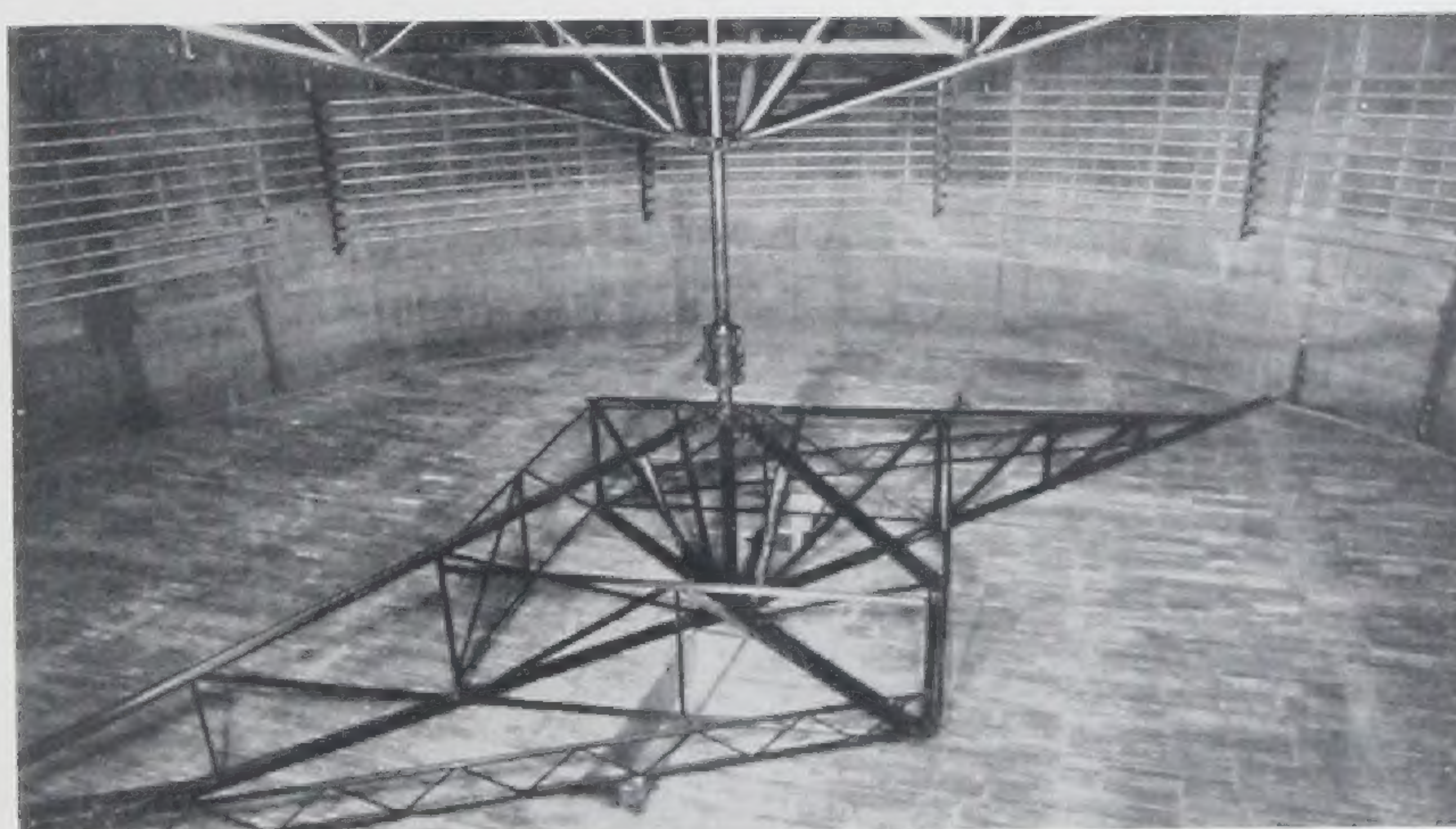
Semi-circular perforated wrought iron drain line installed a short time ago in the Old Union Tunnel of the Pennsylvania Railroad at Baltimore. The weep pipes also are wrought iron.



Towing a 1000-foot wrought iron sewer outfall line out to sea at Loch Arbour, N. J. This 12" line is subjected to corrosion from both salt water and sewage.



Wrought iron bands on fermenting tanks at the Duquesne Brewing Company plant, Pittsburgh. A wood tank is no better than the bands which hold it together. Wrought iron bands have proved their durability.



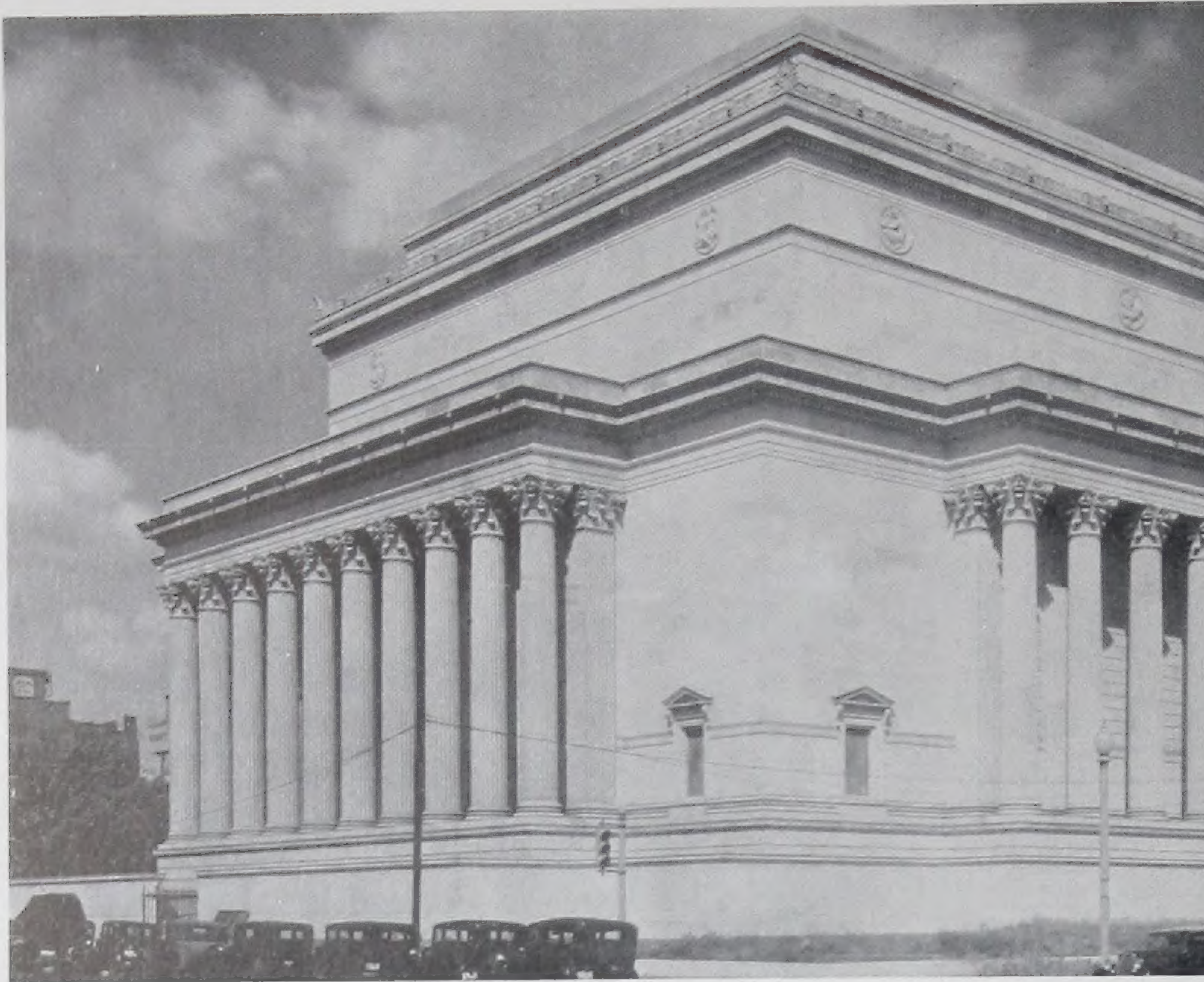
Heating coils in sewage sludge digestion tanks at the Peoria, Illinois, Sewage Treatment Plant. Sewage is highly corrosive and wrought iron is used for many services in treatment and disposal work.



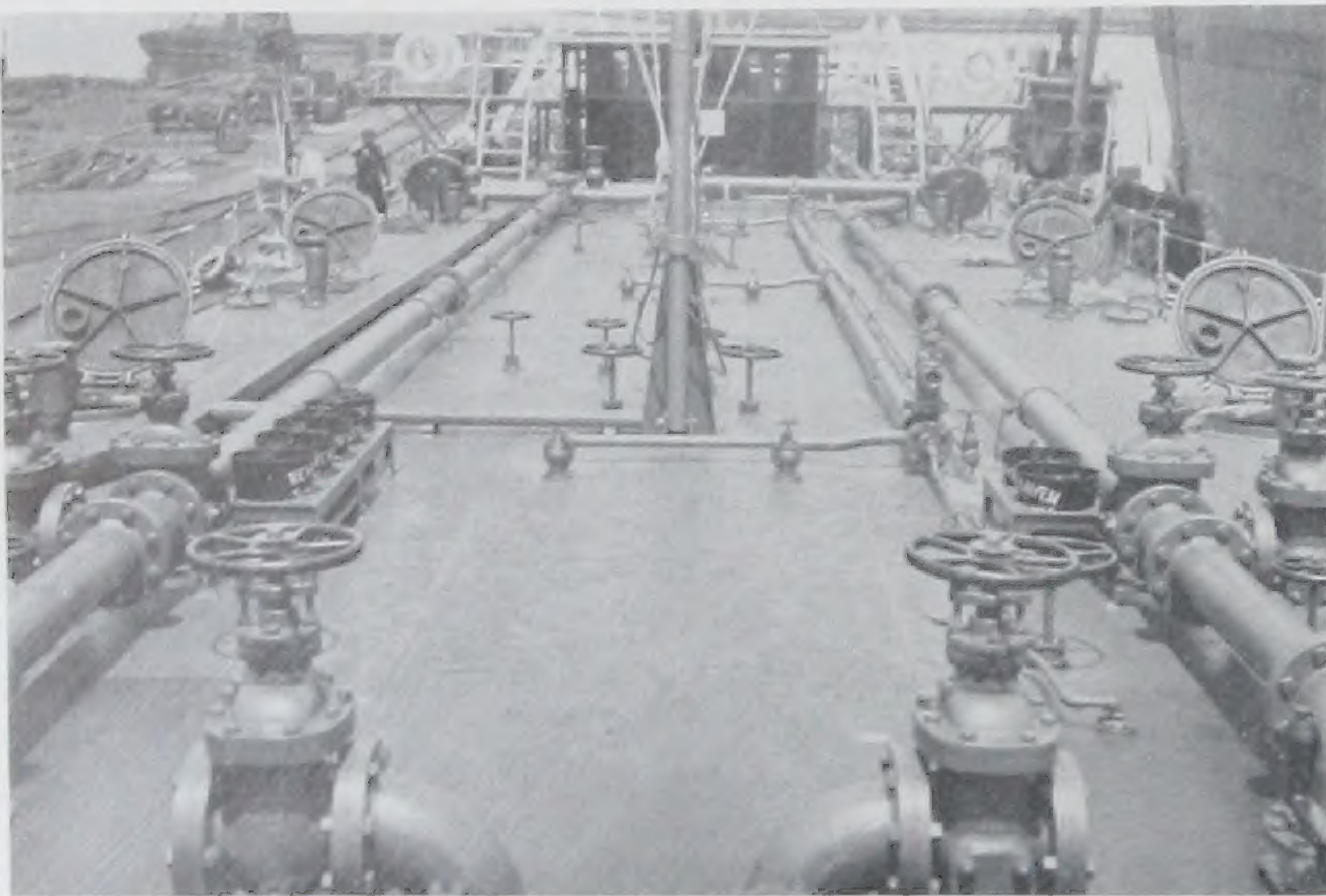
Wrought iron conduit in the lighting system on the new Pittsburgh-Homestead High Level Bridge. Wrought iron pipe is used generally for conduit installations subject to corrosion.



Installing wrought iron O.D. tubes in an air pre-heater at a large power plant in Chicago.



Flag poles, fabricated from wrought iron pipe, in front of the Archives Bldg., Washington, D. C.



Cargo lines of wrought iron pipe on the deck of the "New Haven Socony"—one of the three tankers placed in service a short time ago by the Standard-Vacuum Transportation Company. Wrought iron was used on these tankers for eighteen other piping services and for the rudder frames, arms and stocks, and the stern frames.



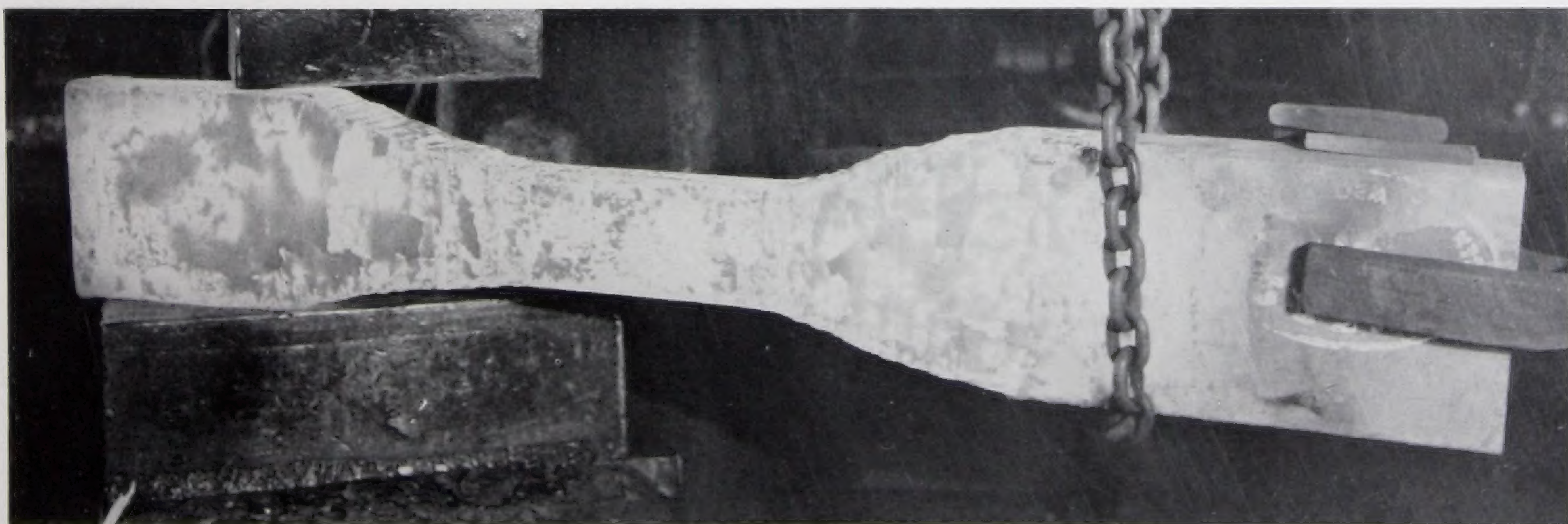
Wrought Iron coal bunker on the ferry boat "Meadville" operated in New York harbor by the Erie Railroad Company. The smoke box, uptake, stack, and many of the piping services on this vessel are also of wrought iron.



Water back line of 5" wrought iron pipe in the wall of a boiler fire box at the Chicago & Western Indiana Railroad roundhouse, Chicago. Here the pipe must withstand high temperatures as well as corrosion.

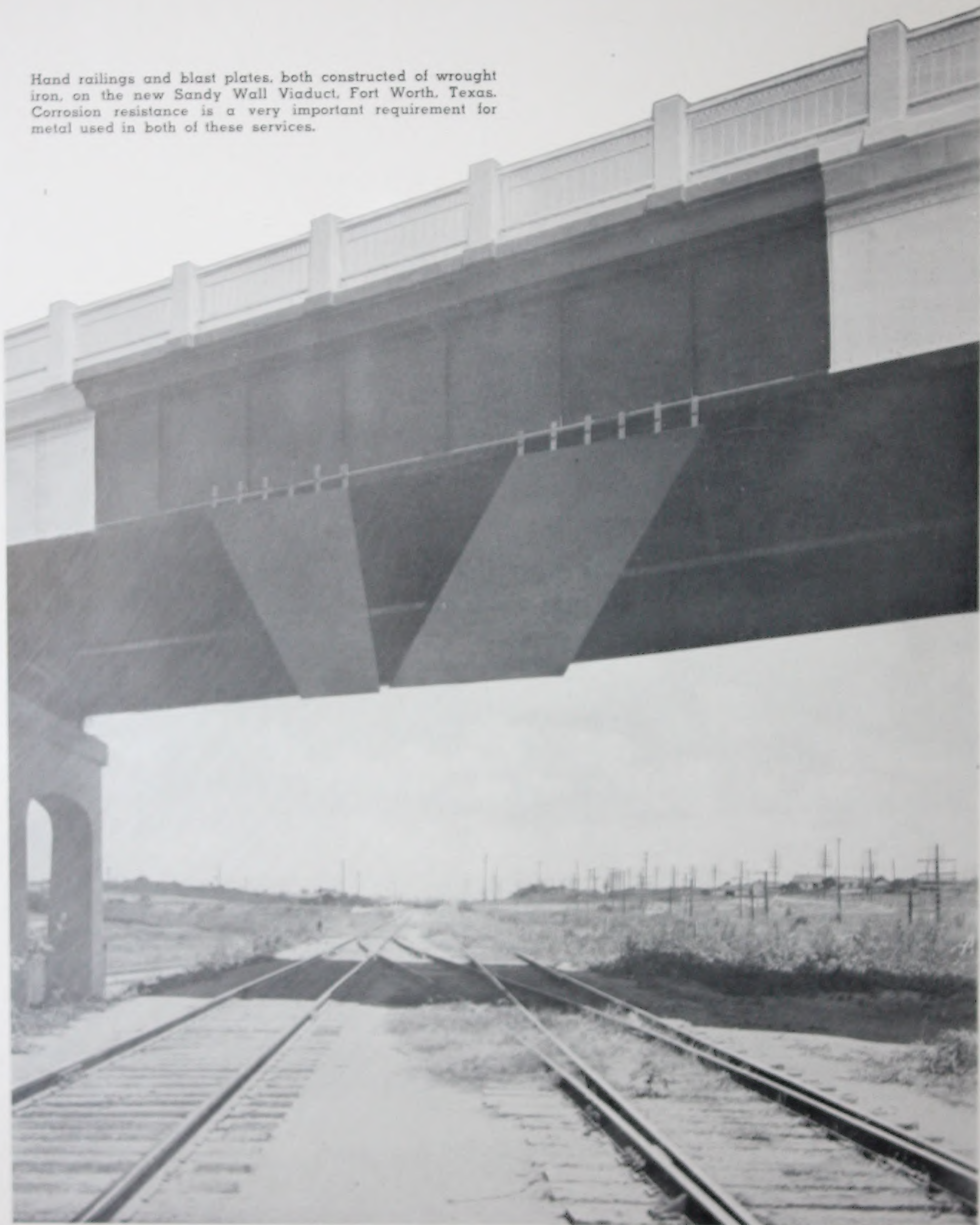


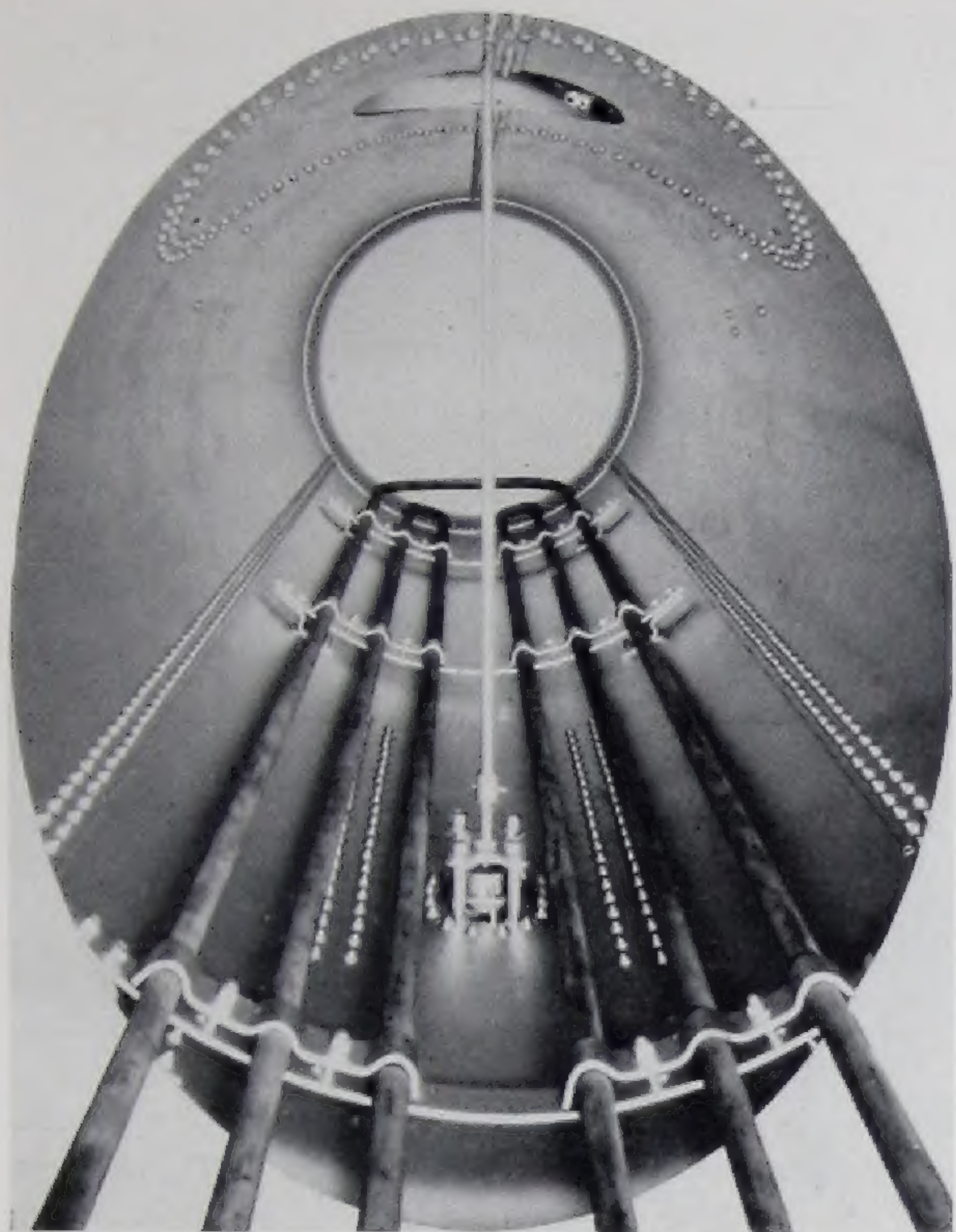
The wood hull of this U. S. Coast Guard Ice Breaker is sheathed with wrought iron to provide additional strength and durability.



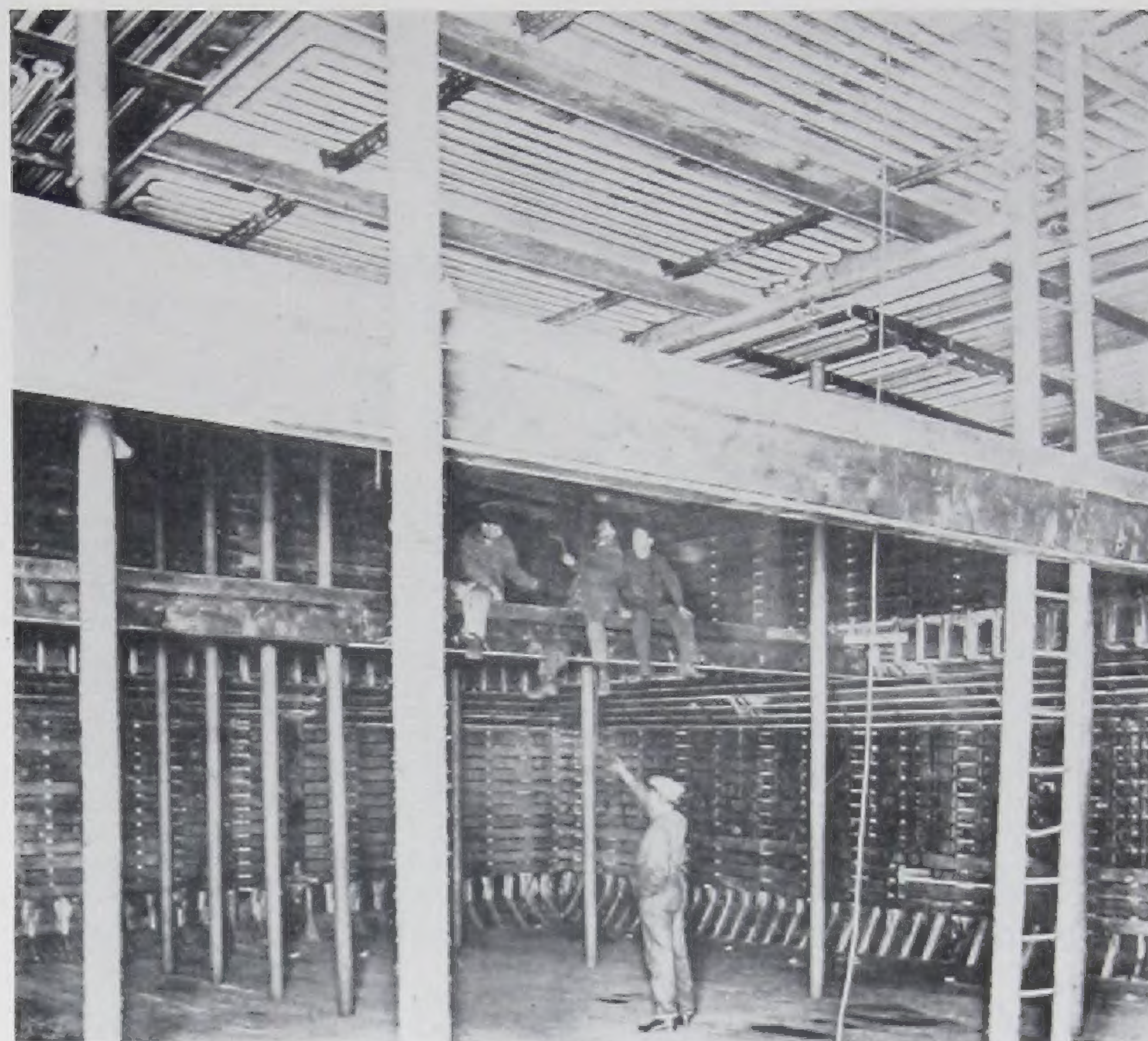
Forging a locomotive draw-bar from wrought iron at the Conneaut, Ohio, shops of the New York, Chicago & St. Louis Railroad. Draw-bars are subject to heavy shocks and wrought iron is used to withstand the fatigue effects that result.

Hand railings and blast plates, both constructed of wrought iron, on the new Sandy Wall Viaduct, Fort Worth, Texas. Corrosion resistance is a very important requirement for metal used in both of these services.

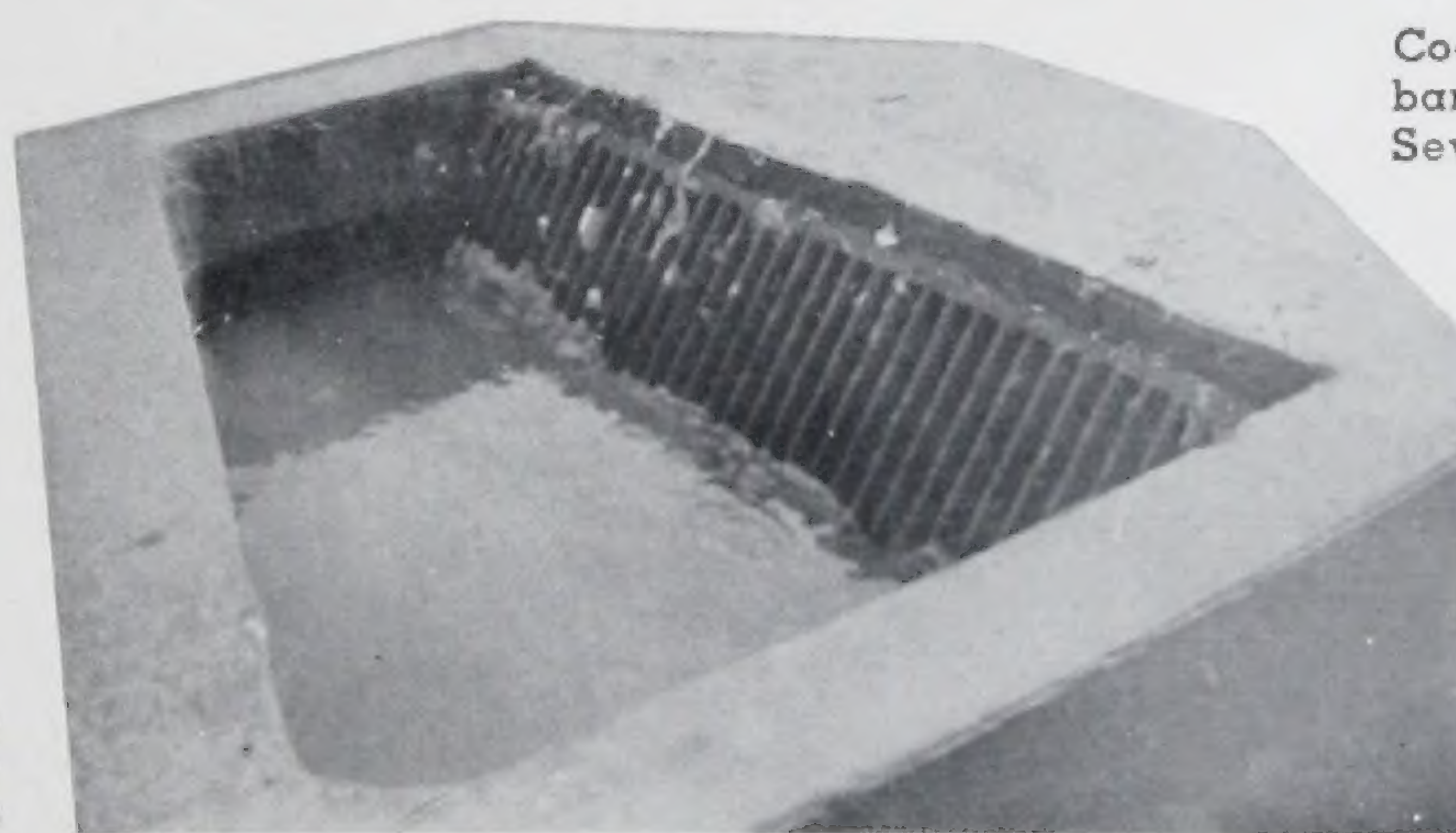




Wrought iron heating coils in syrup tank cars owned by the Corn Products Refining Company.

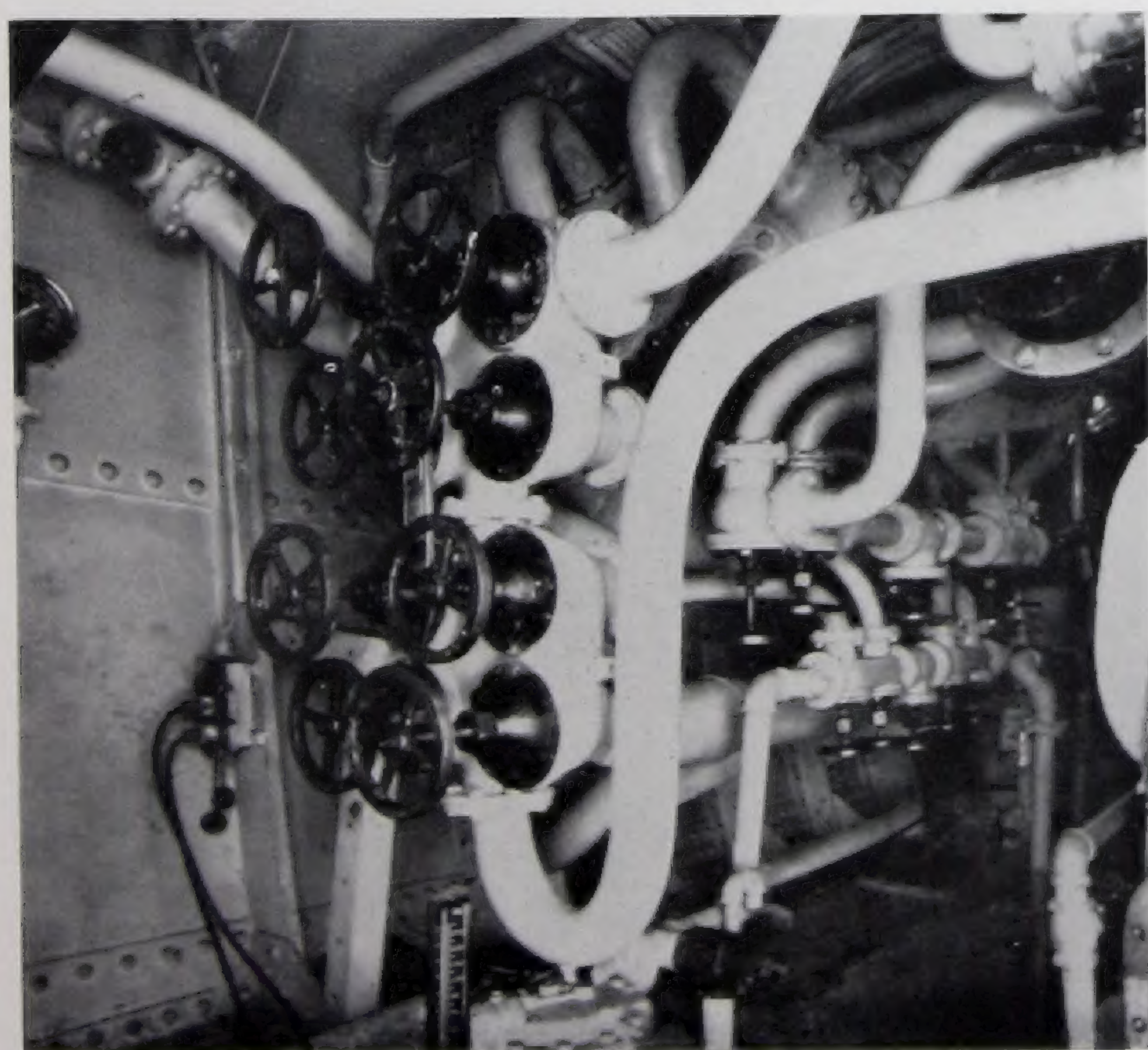


Brine coils of wrought iron pipe in a cold storage room aboard one of the ships of the United Fruit Company's "Great White Fleet."

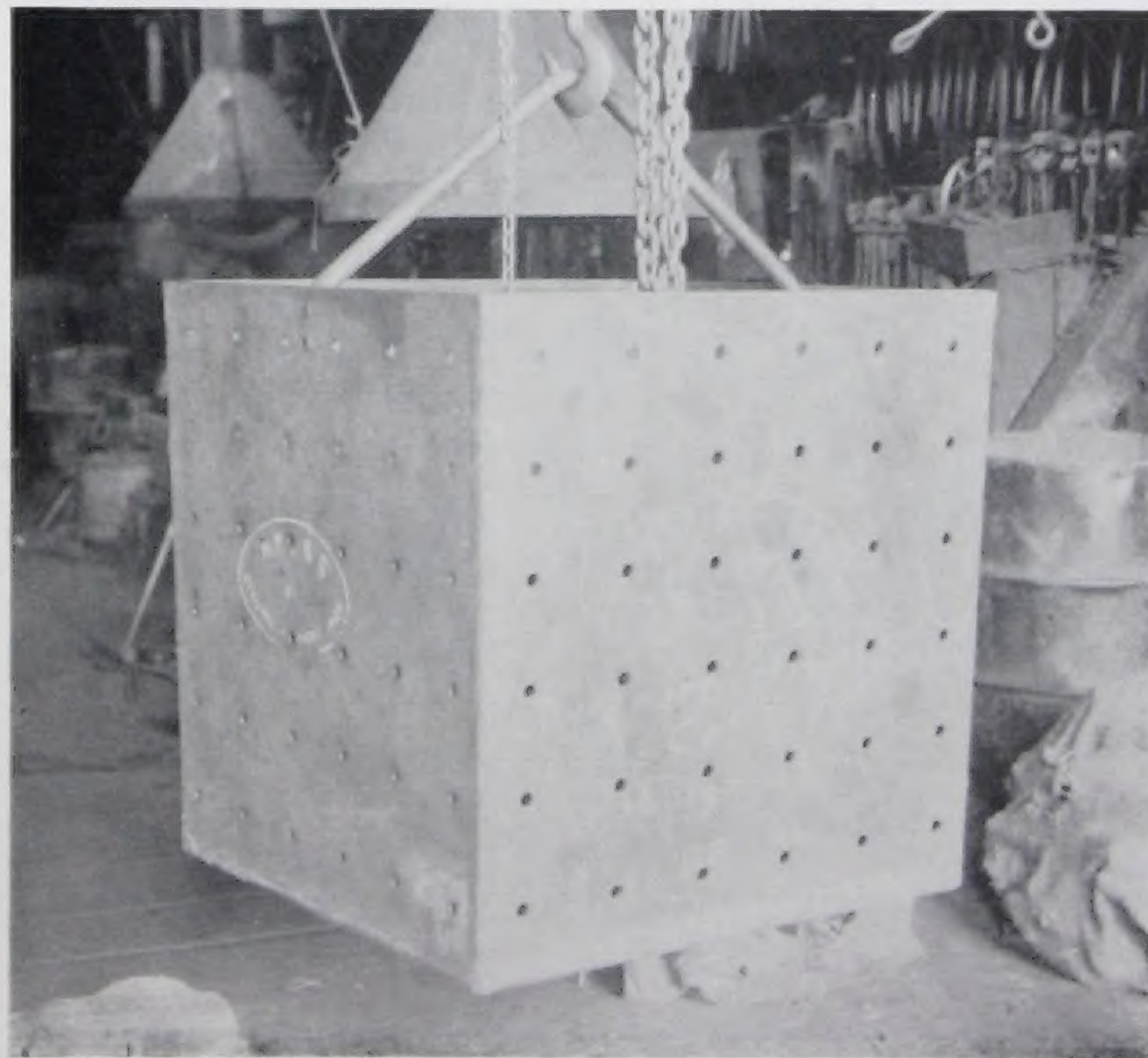


Coarse Screen made of wrought iron bars installed at The Butler, Missouri, Sewage Disposal Plant. Screens are subjected to the corrosive action of raw sewage.

Wrought iron piping on the U. S. Coast Guard Cutter "Hudson." Wrought iron pipe is used extensively on board ships because in most services corrosion failures must be avoided. The main deck and berth deck of this cutter are also of wrought iron.



Perforated debris buckets fabricated by welding from wrought iron plates for use at storm sewer inlets in Pittsburgh, Pa.

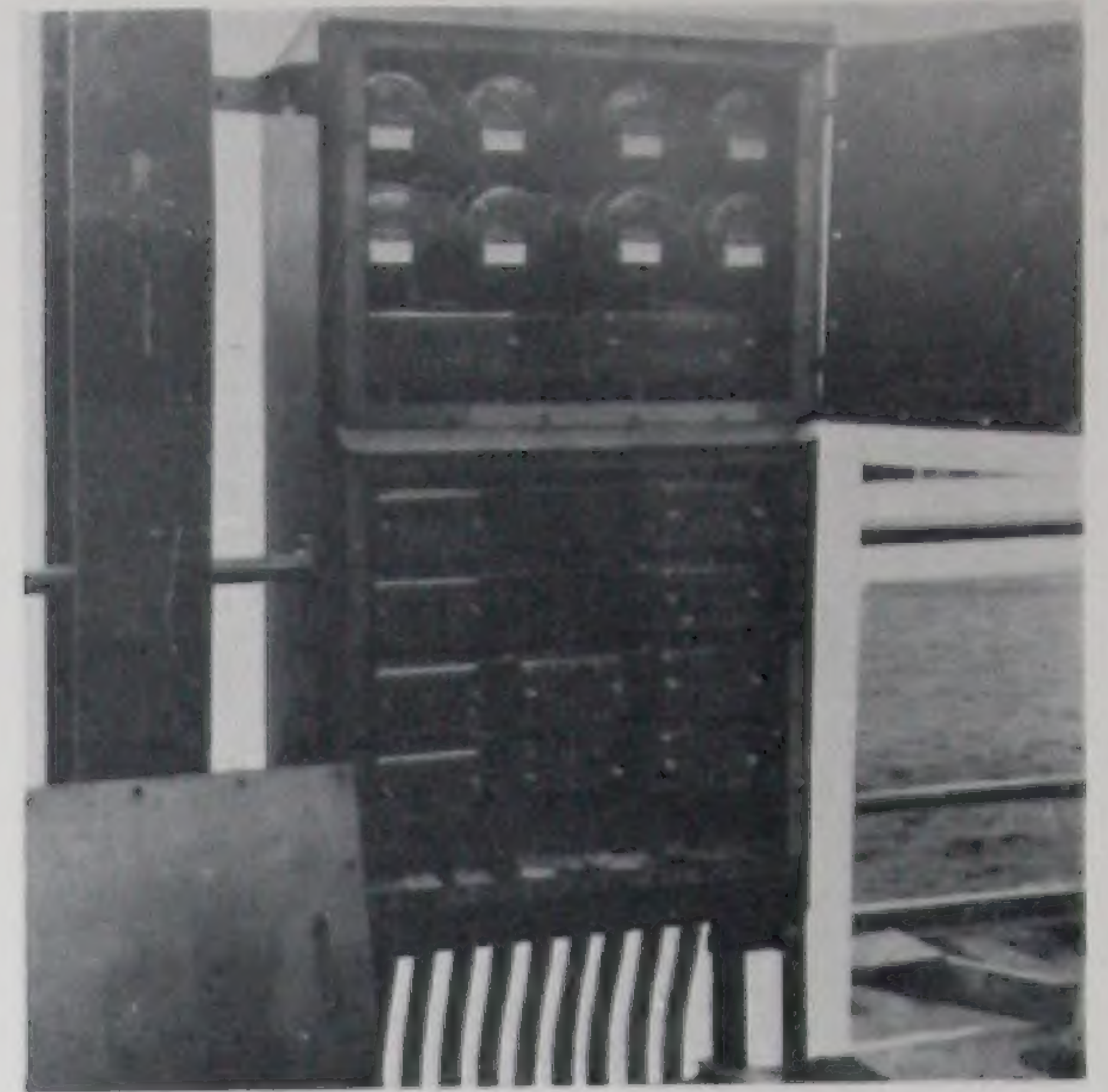




All water lines in the new swimming pool at North Park, Allegheny County, Pa., are of wrought iron pipe.



Light No. 7 in the main channel at Miami, Florida, constructed of wrought iron to withstand salt water corrosion.



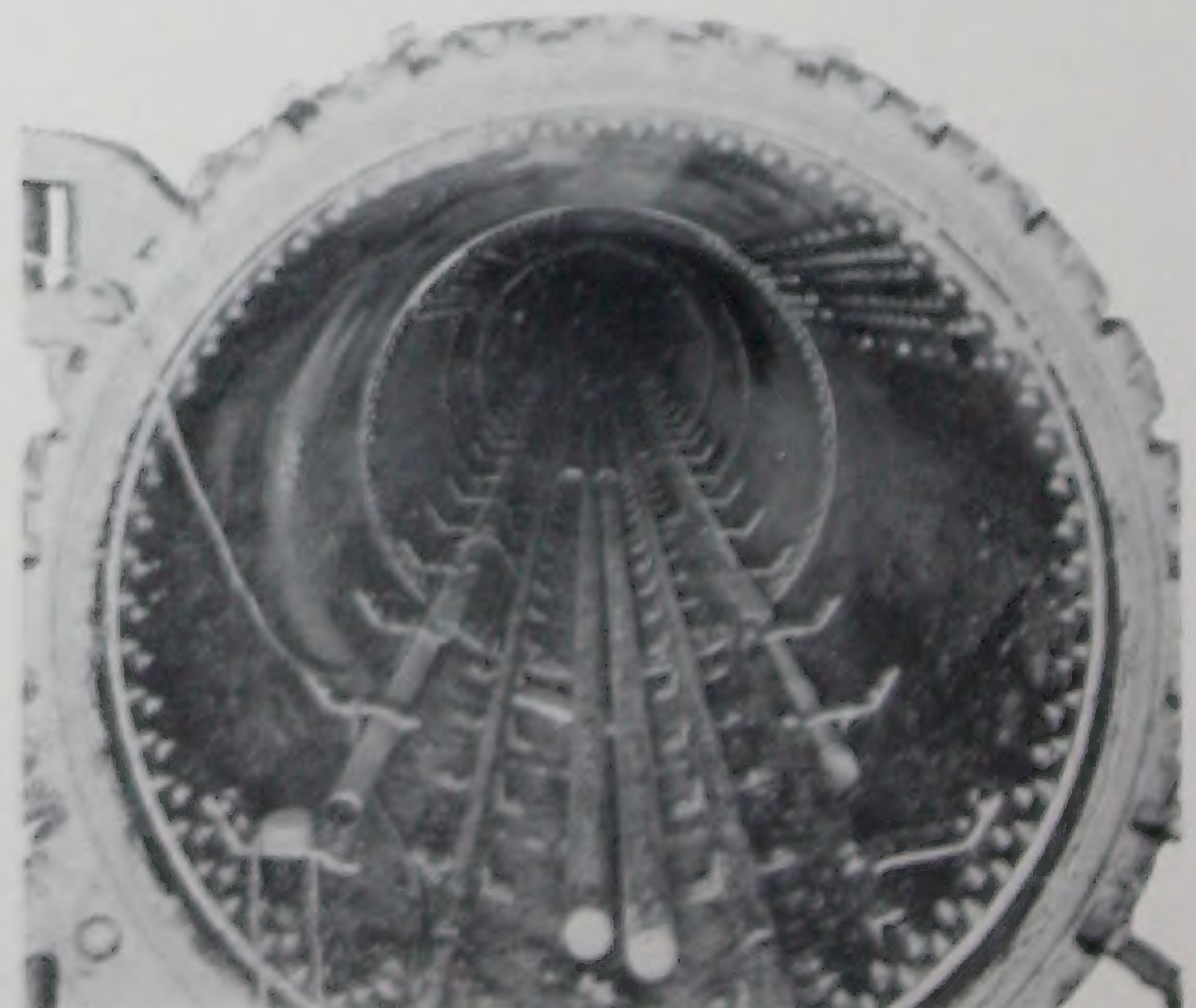
Outdoor relay cabinet built of wrought iron plates at the West Penn Power Company's Windsor Power Station, Beech Bottom, W. Va. An excessive amount of smoke in the air makes corrosive conditions very severe at this station.



The Grant Building in Pittsburgh, Pa., is an excellent example of a permanent type office building. Wrought iron pipe was used for many services, including—cold water; fire and drinking water lines; soil, waste, vents, and drainage lines; rain leaders or downspouts; heating supply and return lines.



Water turbine wheel built with wrought iron runners for a large paper company.



Wrought iron heating coils in a wood treating cylinder at the C. & N. R.R. treating plant, Escanaba, Mich.



Boiler washing system piping of wrought iron in the engine house at the Markham yards of the Illinois Central Railroad.



Wrought iron roofing, siding, and ventilators on the Milwaukee Harbor Commission Transit Shed No. 1 in Milwaukee Harbor.



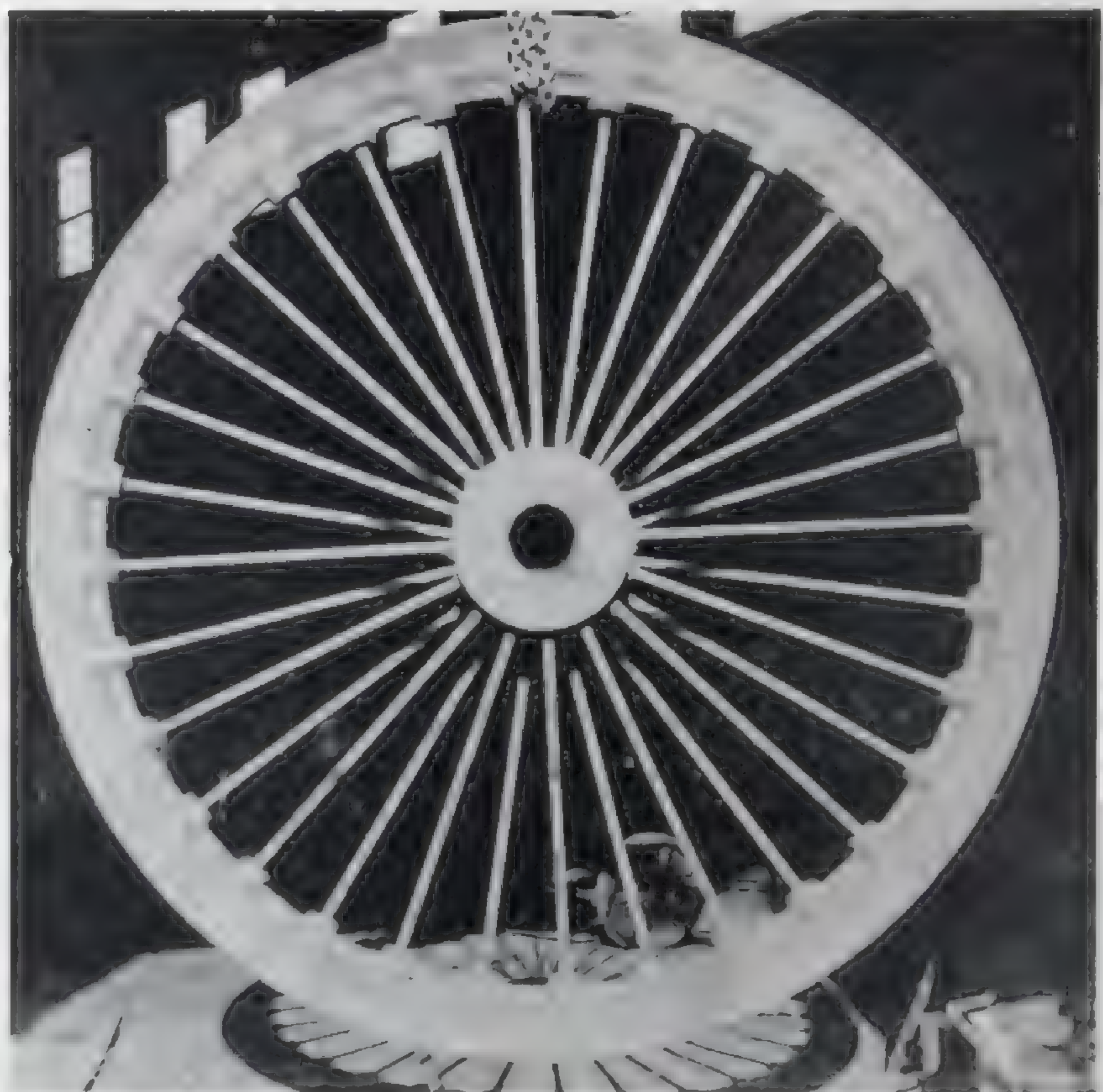
The New York Central Railroad's new passenger train "Mercury." Wrought iron pipe is used in both the locomotive and the coaches.



Sand-drying coils of wrought iron pipe at the Ottawa Silica Company plant, Ottawa, Illinois. Both abrasion and corrosion influence service life in this application.



Sprinkler piping of wrought iron in the aeration basin at the Hempstead Water Works, Hempstead, Long Island.



Sheave wheel, 7' diameter, fabricated with wrought iron spokes for the Consolidation Coal Company, Fairmont, West Virginia.



The Charles Deering Memorial Library, Northwestern University, Evanston, Illinois. The soil, waste, and vent lines, and the downspouts are wrought iron.



The San Francisco War Memorial Buildings in which wrought iron was installed for the corrosive piping services.



Steam coils fabricated from wrought iron pipe installed in a horizontal vulcanizer built for Hodgman Rubber Co., Framingham, Mass.



Engine truck equalizers forged from wrought iron. This is another railroad service where the fatigue resistance of wrought iron is important.



Subway type transformer tanks built of wrought iron plates and pipe for installation at Lock & Dam No. 20, Canton, Mo.



Floor drainage lines or downspouts of wrought iron pipe on the new Inter-city Viaduct, Kansas City. The blast plates, collection boxes on downspouts, and curb drain gratings are also wrought iron.



Wrought iron pipe downspouts on train sheds at the Chicago & North Western Railway Suburban Passenger Station, Evanston, Illinois.



The towboat "Resolute" designed by Gielow, Inc., and built recently for the Providence Steamship Company. The entire hull of this tug was fabricated from wrought iron plates, using welded construction. Wrought iron has again come into general use for hulls, particularly on vessels designed to stand up under hard usage over a long period of years.



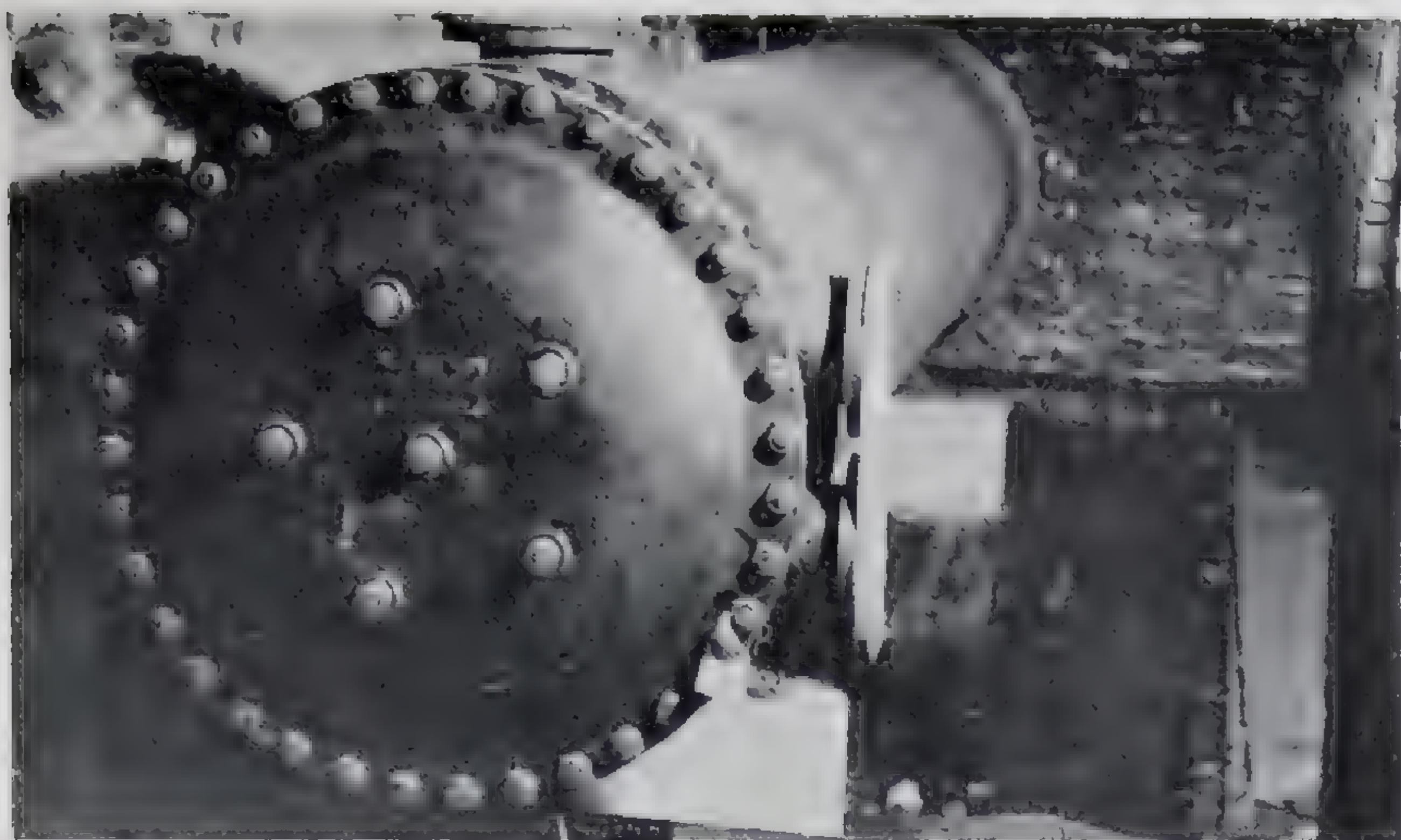
Storm warning tower constructed of wrought iron structurals at the U. S. Weather Bureau Station, San Juan, Porto Rico. Atmospheric corrosion seriously affects metals in the tropics and for that reason wrought iron was used.



Pontoon pipe used in dredging operations. Wrought iron pipe is employed for installations of this type because, among the softer ferrous metals, it has exhibited a high resistance to abrasion.



Fire protection sheets of wrought iron on Pennsylvania Railroad Bridge No. 31.31 at Downingtown, Pa. Sheets used for fire protection must be durable in order to be effective over a period of years.



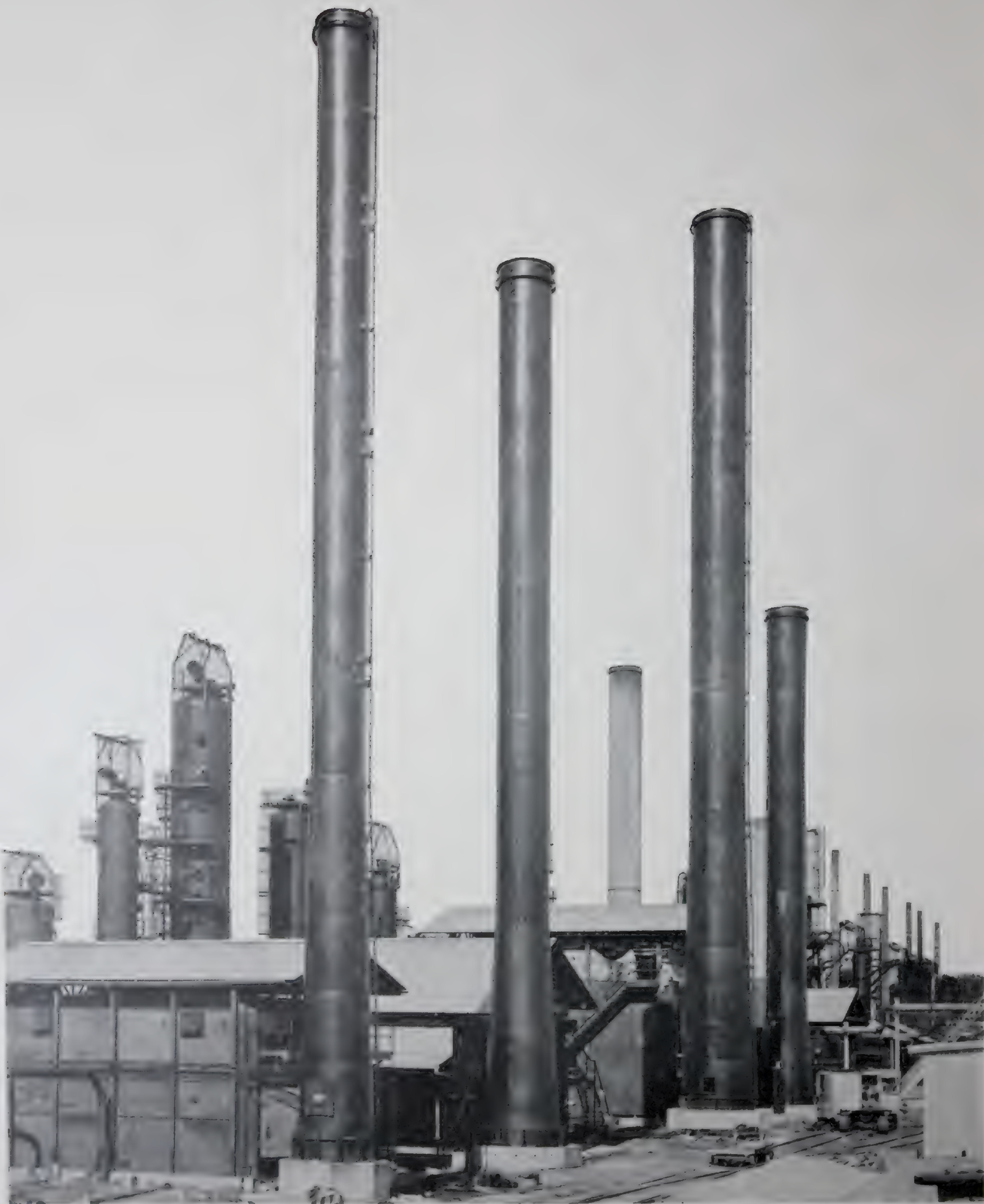
One of the heat exchangers, equipped with wrought iron O.D. tubes and wrought iron tube sheets, installed recently at the plant of Penobscot Chemical Fibre Co., Great Works, Maine.



Oil lease tanks constructed of galvanized wrought iron sheets in service on the Republic Natural Gas Company's Bloomer Lease, Bloomer Pool, in Kansas. Hundreds of wrought iron lease tanks have been installed recently in many fields where corrosive sour crude oils are produced.



The Stevens Hotel in Chicago. Hundreds of tons of wrought iron pipe are in service in this building.



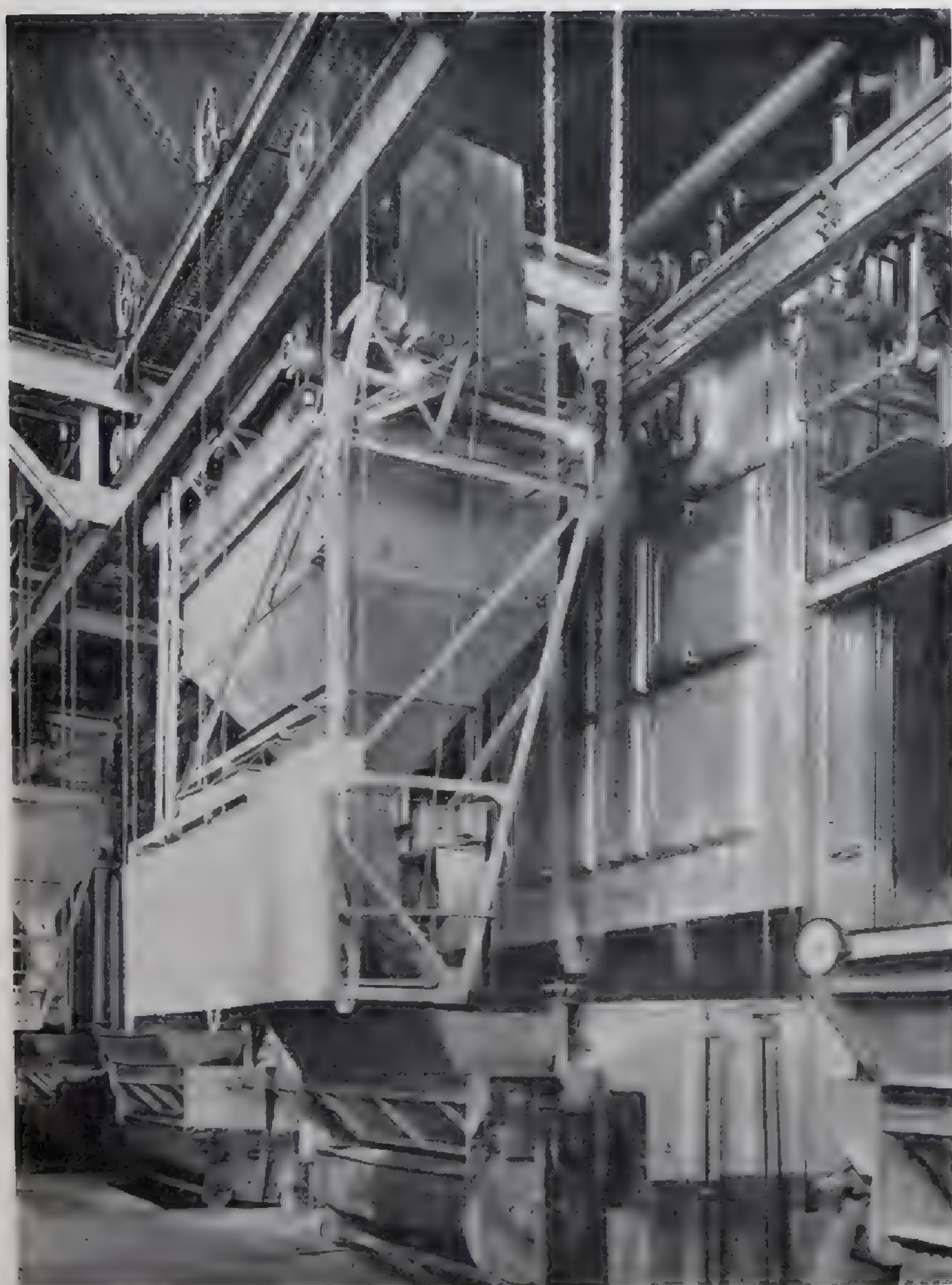
Four wrought iron furnace stacks, ranging from 100' to 150' high, erected recently at the Shell Petroleum Corporation's Deer Park Refinery, Houston, Texas. Wrought iron stacks are now used in all branches of industry to obtain longer service life.



Wrought iron plates being installed between the ties and the top flanges of the steel girders on a Missouri Pacific Railroad bridge to protect the steel against the effect of brine drippings from refrigerator cars.



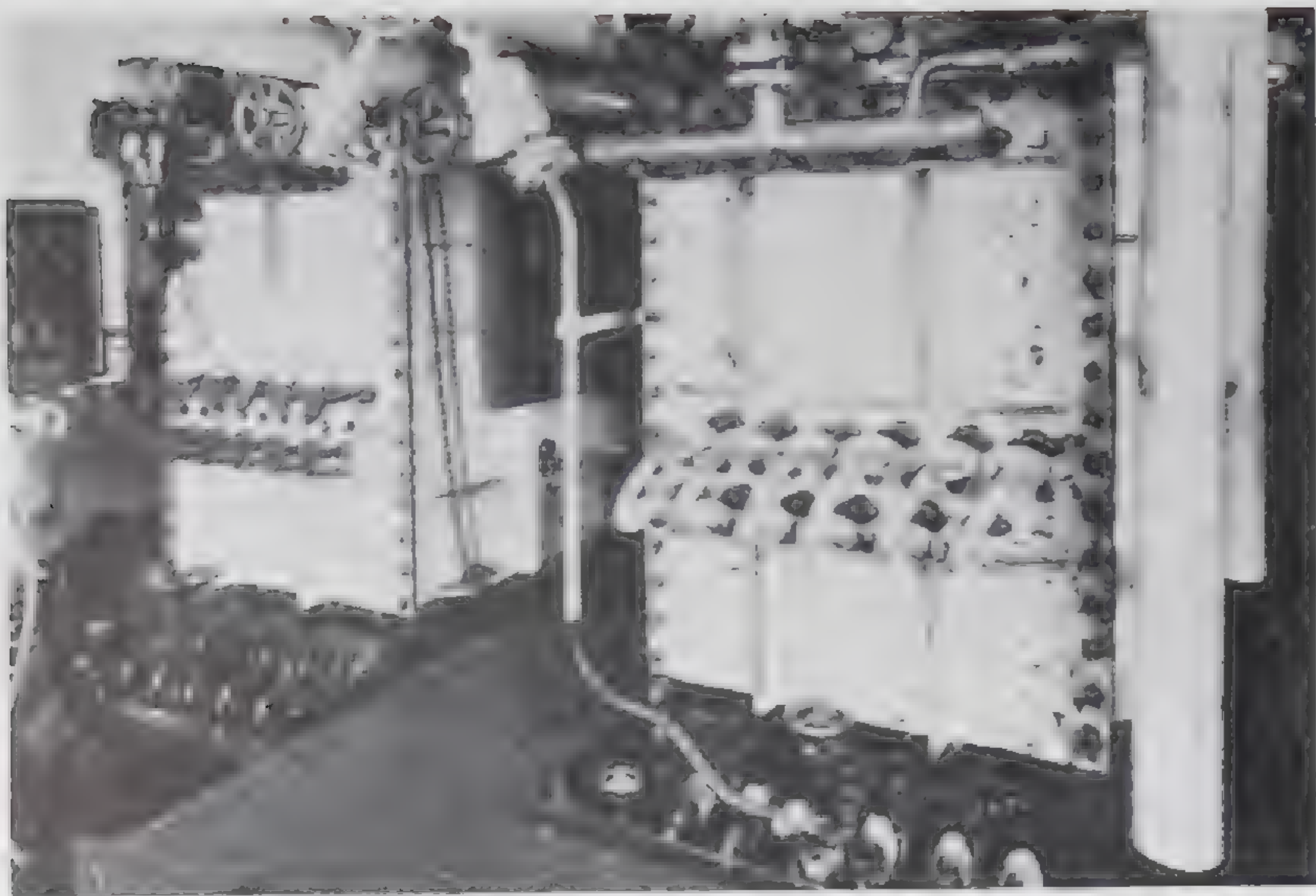
Water gas generator shell constructed of wrought iron at the Public Service Electric & Gas Co., Kearny, N. J.



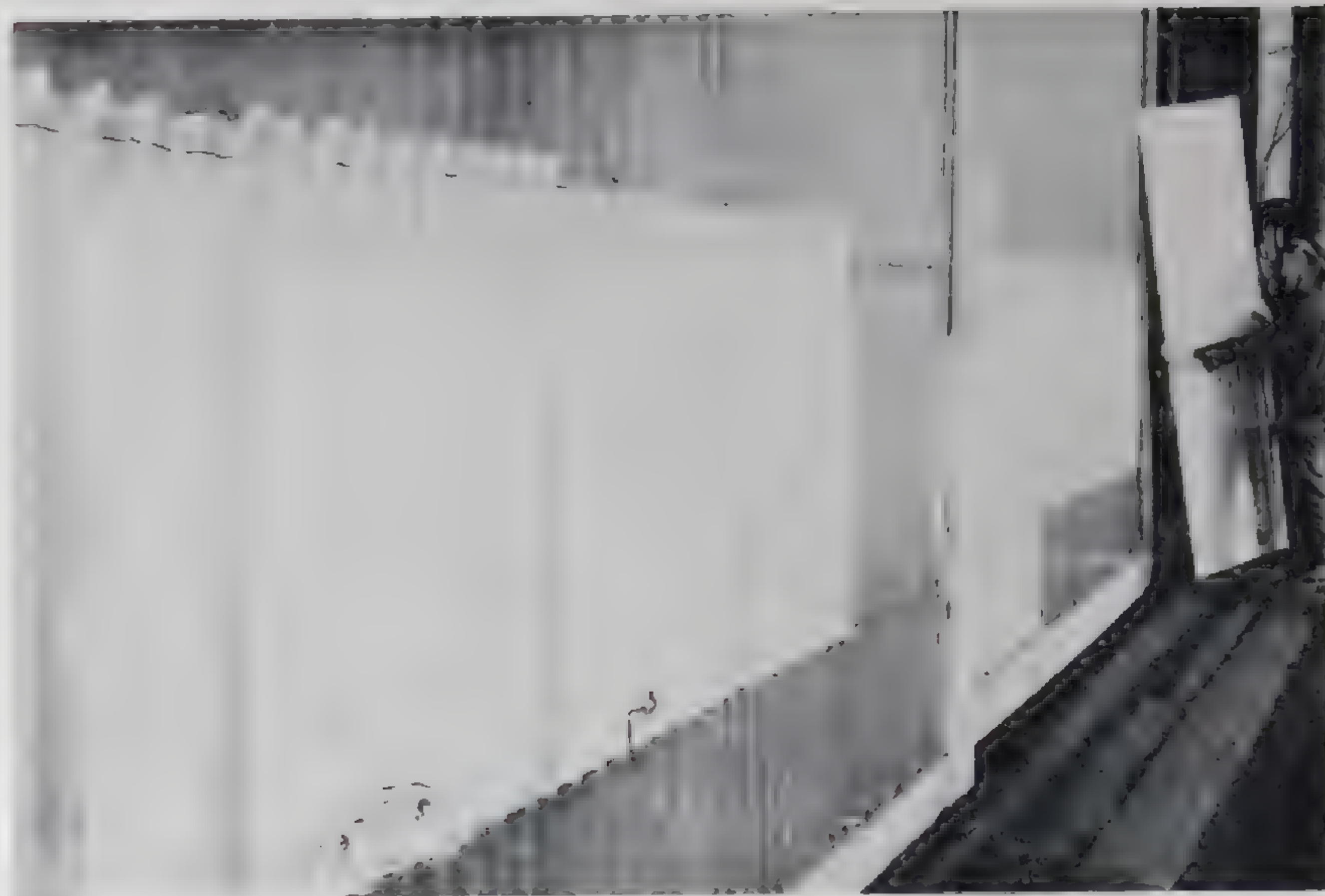
The hoppers on these coal laries in the boiler house at the Pekin, Illinois, plant of Corn Products Refining Company are constructed of wrought iron. The twelve stoker hoppers, into which the laries discharge, are also of wrought iron.



Two wrought iron oil lines being laid across the Houston Ship Channel by one of the pipe line companies. At locations such as this, the pipe is frequently subjected to abnormal corrosion and wrought iron is commonly installed.



CO₂ condensers piped with wrought iron on the U. S. Army Transport "Republic". Salt water is used for cooling the condensers.



Wrought iron siding sheets used as replacements on New York Dock Company's Pier No. 17, Brooklyn.



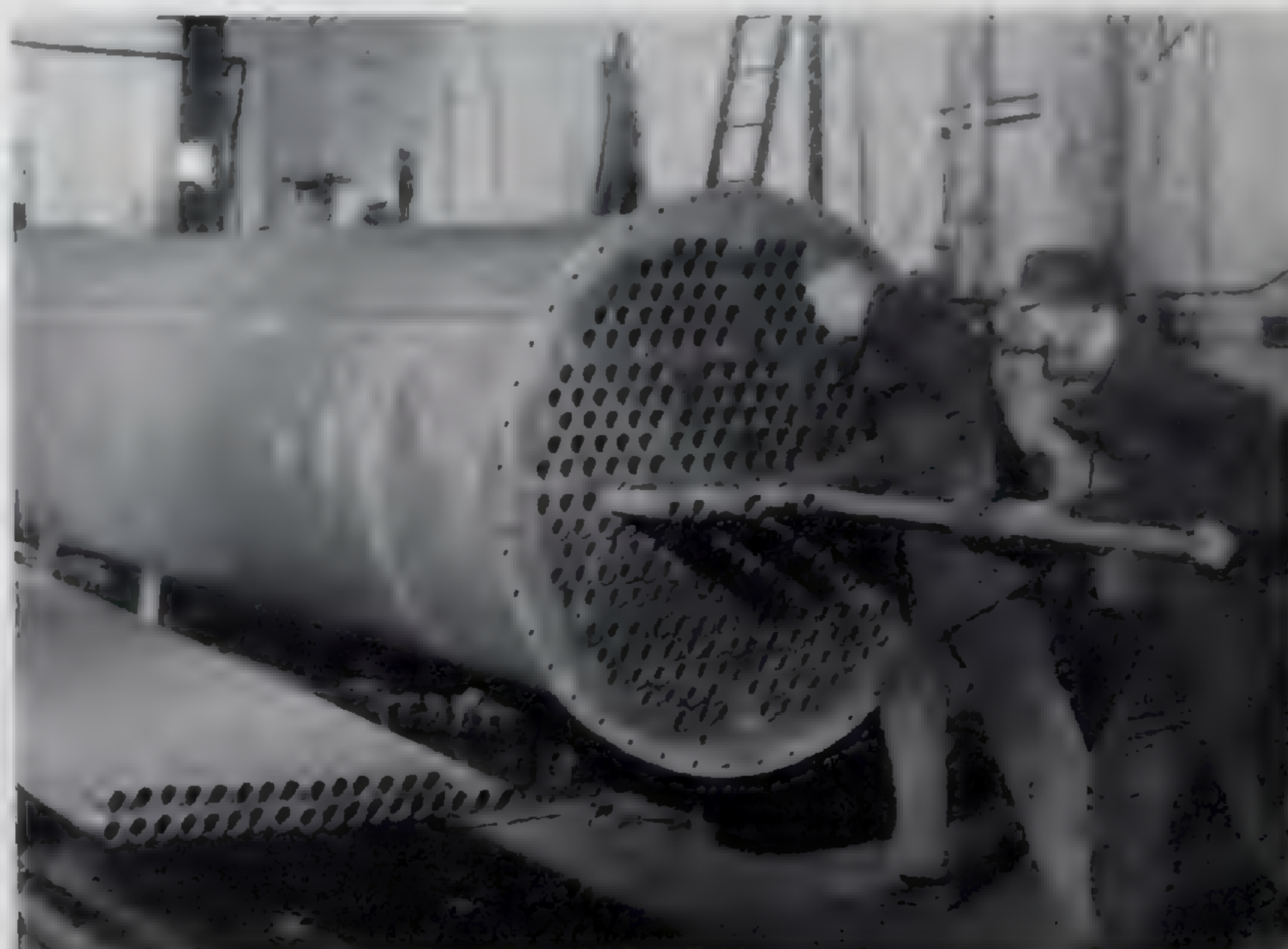
Spacer straps and concrete slab floor supports on one of the new Florida Keys Bridges. These are thin sections and wrought iron is used because the metal is exposed to salt water spray and salt air.



The river towboat "Ranger" owned by the Pittsburgh Coal Company. Wrought iron was installed recently on this boat for re-enforcing straps on the pitman rods, boiler water piping, and pipe straps.



Welding wrought iron plates to the bottom flanges of roof beams in a tunnel on the New York Central Railroad near Oswego, N. Y. The wrought iron serves the double purpose of strengthening the beams and protecting them against corrosive blasts from locomotives.



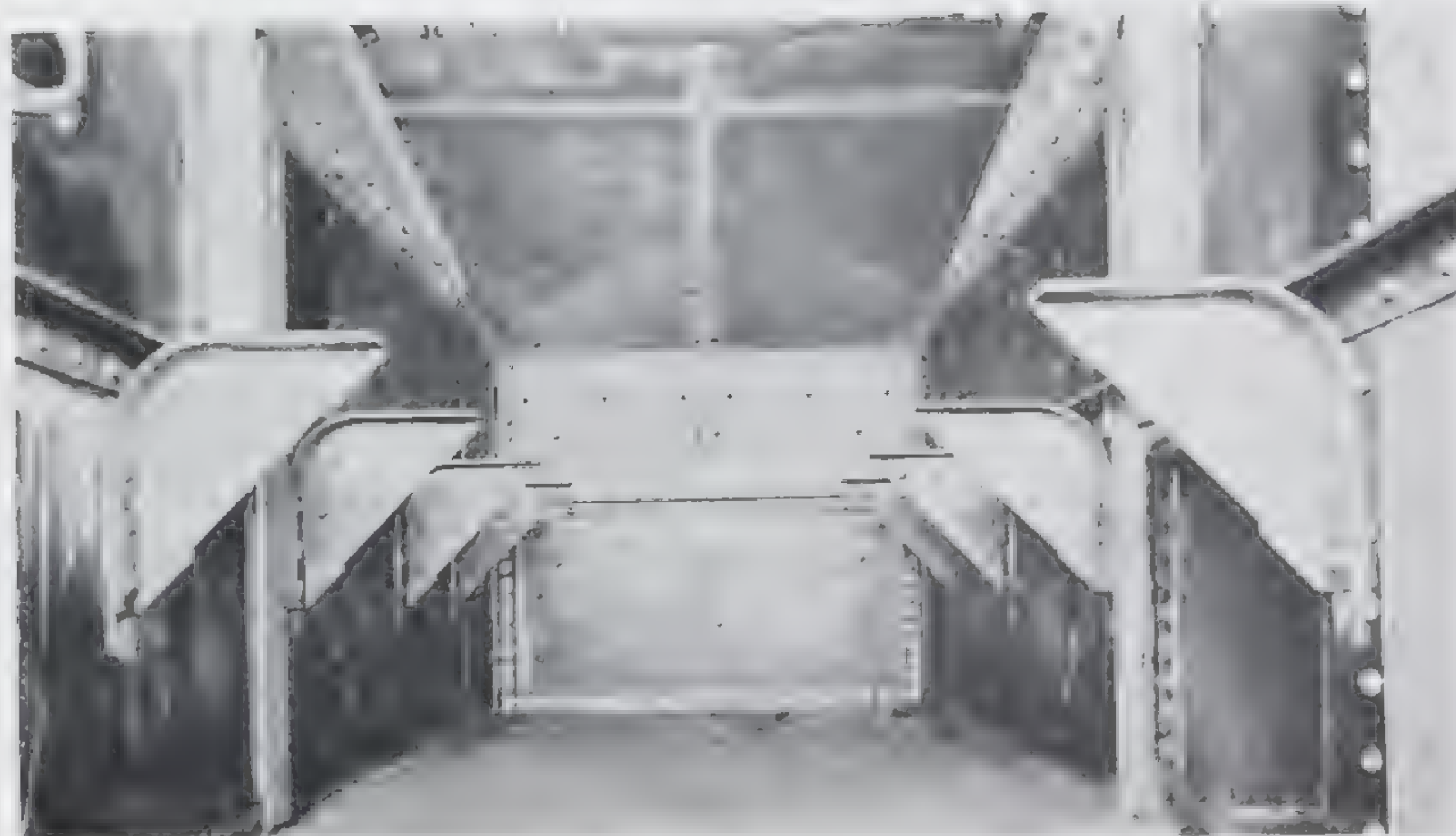
Installing wrought iron O.D. tubes in a new shell and tube ammonia condenser built for Anheuser-Busch Company, St. Louis. Wrought iron tubes are now used generally for this service because condenser cooling waters are usually very corrosive.



One of the ornamental wrought iron entrance gates to Greenfield Village, The Edison Institute, Dearborn, Michigan. Here, again, durability and beauty are combined.



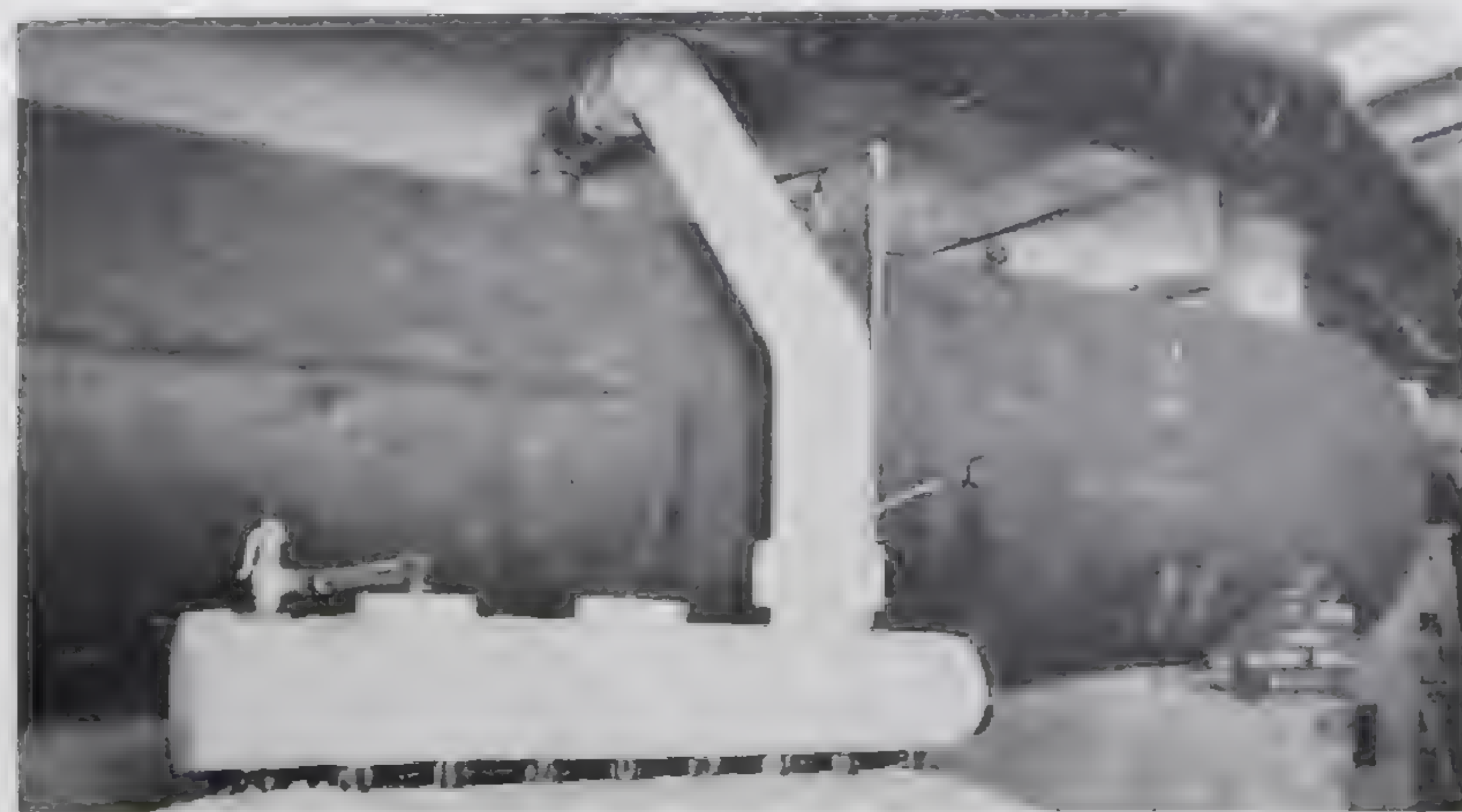
Launching the "William A. Thompson", one of the new dredges completed spring, 1937, for the U. S. Engineers. This vessel and its sister ship, the "Rock Island", both have wrought iron hulls. Also, wrought iron pipe is installed in many of the piping services.



Coal pocket in the tender of one of the ten new steam locomotives recently built for the New York, New Haven & Hartford Railroad. Wrought iron plates were used for the coal pockets and for baffle plates.



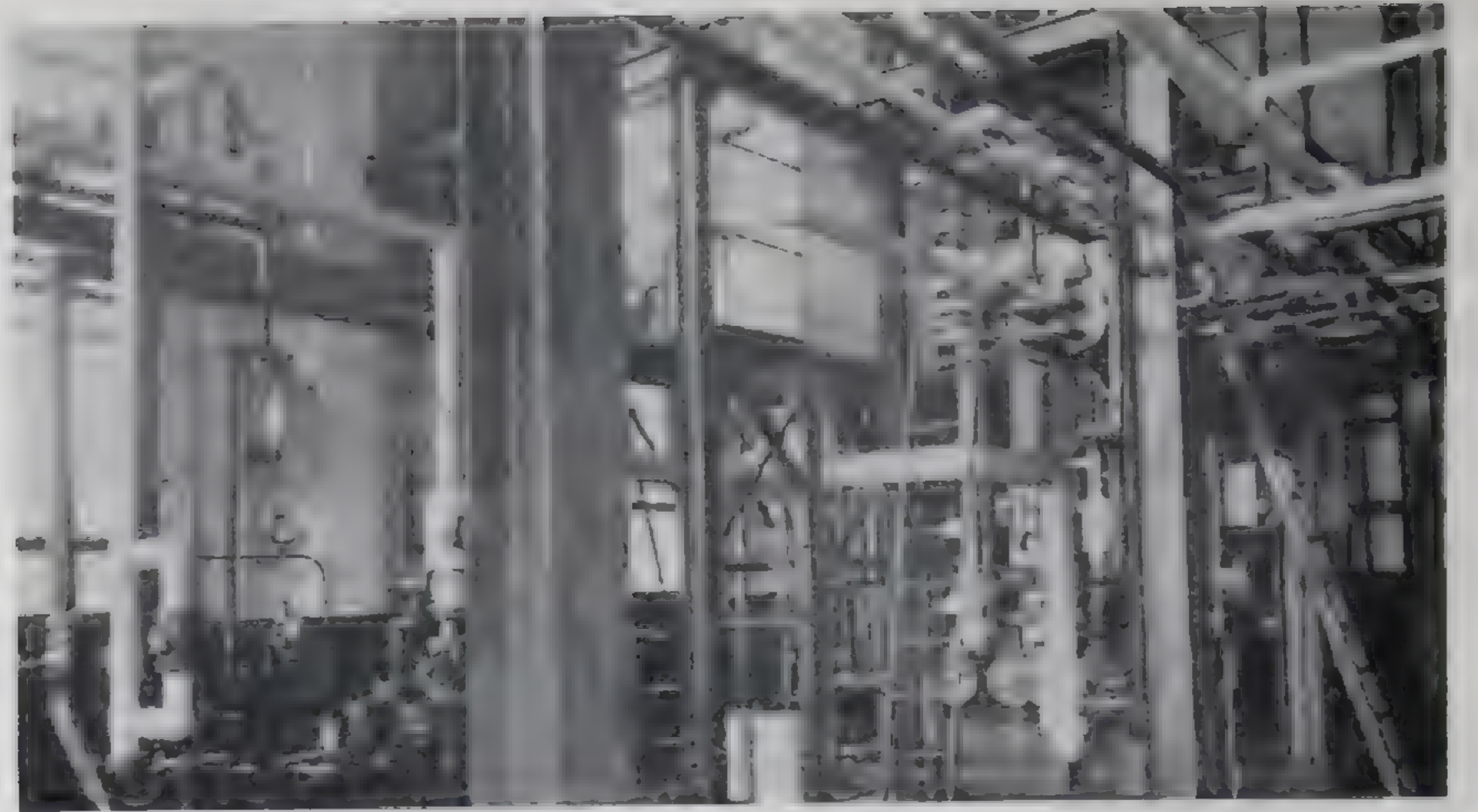
Blow-off lines of wrought iron pipe in the Chicago round-house of the Chicago & Western Indiana Railroad.



Hot water tank of wrought iron in a large apartment house in New York City. Tanks of this type are subjected to severe corrosion, hence the desirability of using wrought iron.



Wrought iron pipe in one of the operating galleries at The Milwaukee Sewage Treatment Plant. Wrought iron pipe used for—branch connections between air headers and diffuser-plate containers in aeration tanks; air supply lines in mixing, feed, mixed liquor, and return sludge channels; downspouts; concealed heating returns; and railings.



Piping in the heating plant of the New York, New Haven & Hartford Railroad at Cedar Hill, Connecticut. Wrought iron pipe is installed in many corrosive services and the stack and breeching are built of wrought iron plates.



Ballast deck of wrought iron plates being installed on the Missouri Pacific Railroad's new bridge over Ivory Avenue in St. Louis. Wrought iron has come into general use for bridge decks on many large railroads.



Welded wrought iron surge tank in the Southwestern Bell Telephone Company Building, San Antonio, Texas. The house tank and a large portion of the piping in this building are also of wrought iron.



24" O.D. wrought iron water main on the South Tenth Street Bridge, Pittsburgh. Wrought iron is commonly used for installations of this type because of its resistance to the effects of vibration and corrosion.



Smokejack constructed of wrought iron in the Western Avenue Roundhouse of the Chicago, Milwaukee, St. Paul & Pacific Railroad, Chicago. The smoke duct into which the jack empties is also of wrought iron.



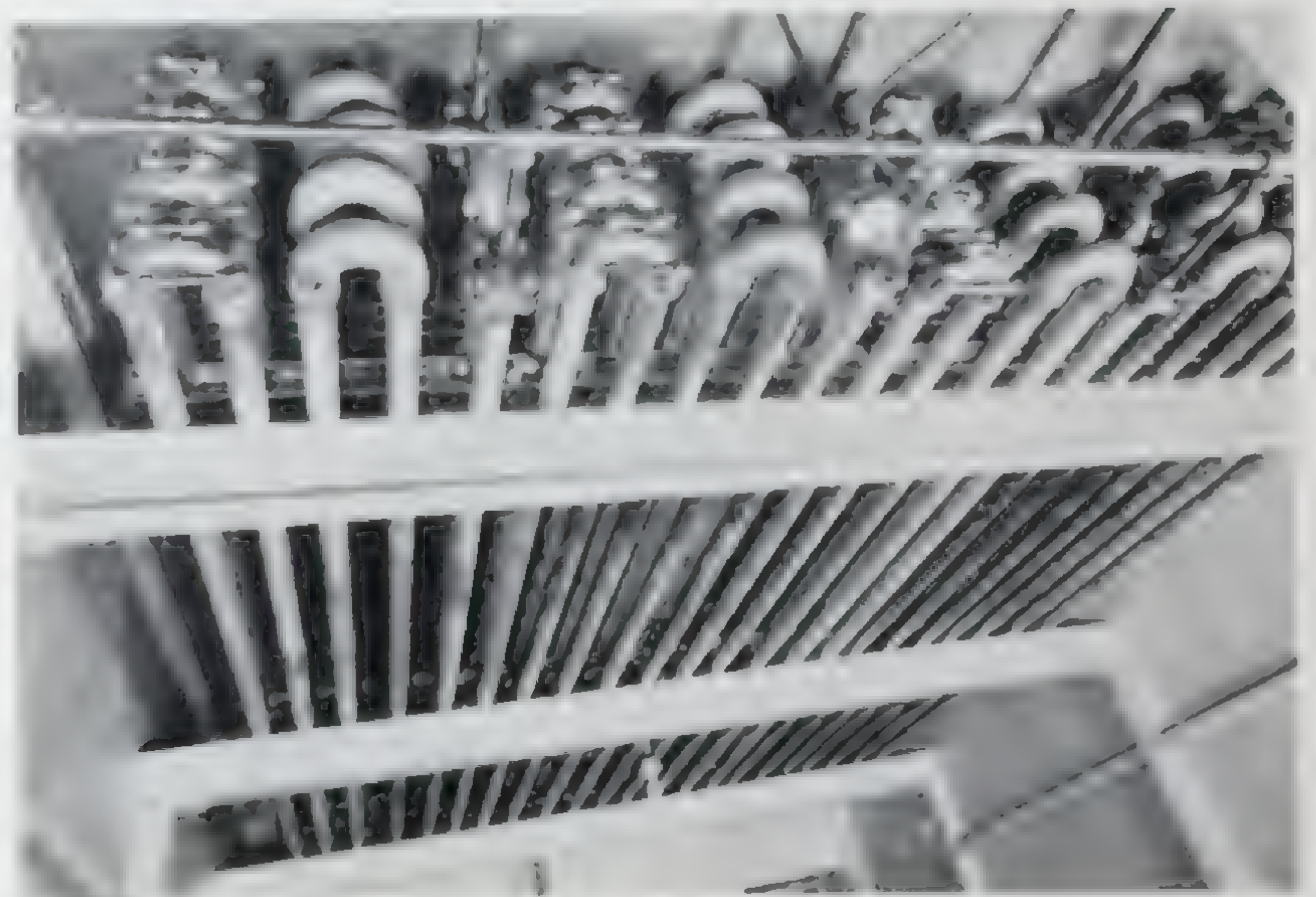
Laying 22,500 feet of 3½" and 4" wrought iron conduit across the Harlem Ship Canal to carry high tension lines of the New York Central Railroad. Here durability is particularly important.



Air brake piping of wrought iron on one of the hopper cars recently built by the Norfolk & Western Railway Company. Failures of air brake lines, due to fatigue, are dangerous—hence the extensive use of wrought iron for this service.



Cathodic waste tanks of wrought iron at the Coney Island Sewage Treatment Plant, Brooklyn, New York. These tanks are of all-welded construction.



Cooling coils of wrought iron pipe in the freezing room at Abbott's Dairies, Inc., Philadelphia.



Furnace smoke pipe made of wrought iron sheets in service in a Chicago building.



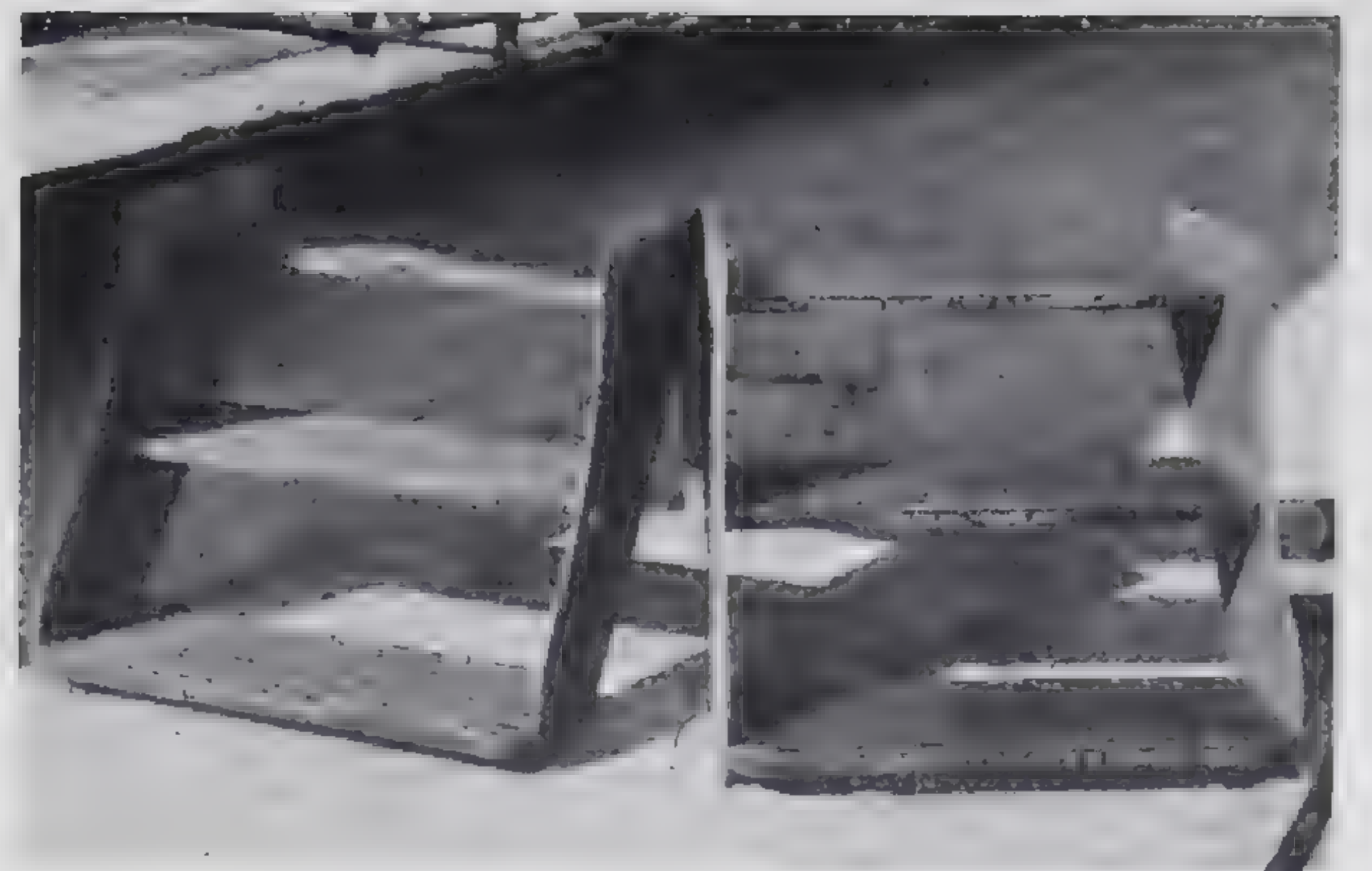
Installing a wrought iron fuel oil tank underground at a large Pittsburgh manufacturing plant. Wrought iron is desirable for this type service because of its high resistance to soil corrosion.



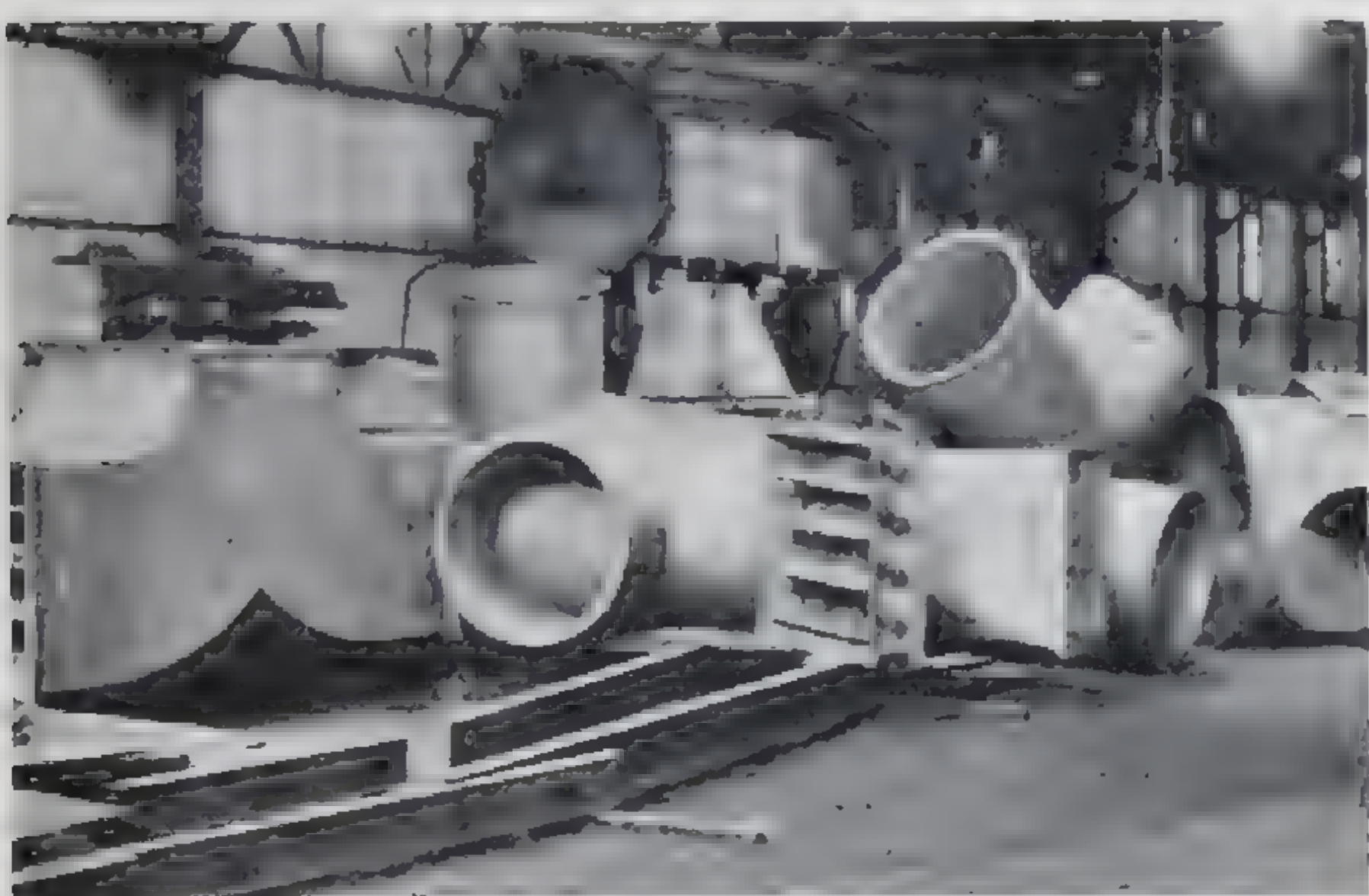
Wrought iron key plates used at the joints in the new concrete intercepting sewer built by the Minneapolis-St. Paul Sanitary District. Wrought iron is desirable for such services as key plates and concrete stops because the material is not accessible for repairs after installation.



Main engine discharge line of wrought iron pipe on the Motorship "Santa Barbara" owned by the Grace Line.



Steps for railroad passenger cars on the Norfolk Southern Railroad. The sides of the steps are of wrought iron sheets.



Blast main equipment fabricated from wrought iron plates for a large industrial plant.



Milk can washer constructed of wrought iron sheets in service at the Nestle's Milk Products Company plant, Sunbury, Ohio.

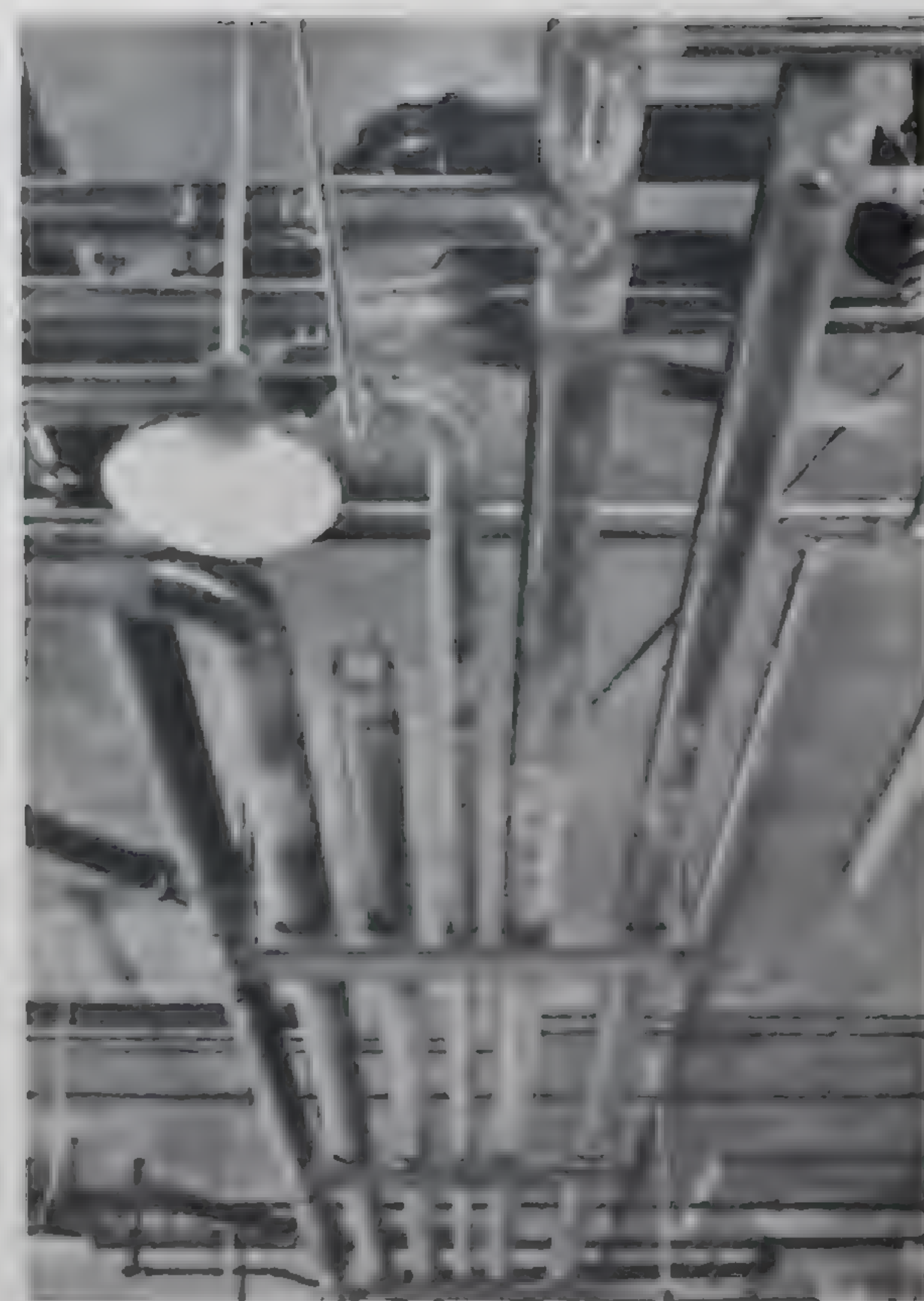


Pier protection plates of wrought iron on concrete approach Pier 7-E of the Pennsylvania Railroad Draw Bridge No. 4.22 over the Passaic River. Wrought iron plates are now used extensively to protect concrete piers against deterioration in both fresh and salt water.

Water storage tank, of 1,000,000 gallons' capacity, fabricated from wrought iron plates at the New England plant of a large manufacturer of photographic supplies. An uninterrupted supply of pure water is absolutely necessary at this plant.



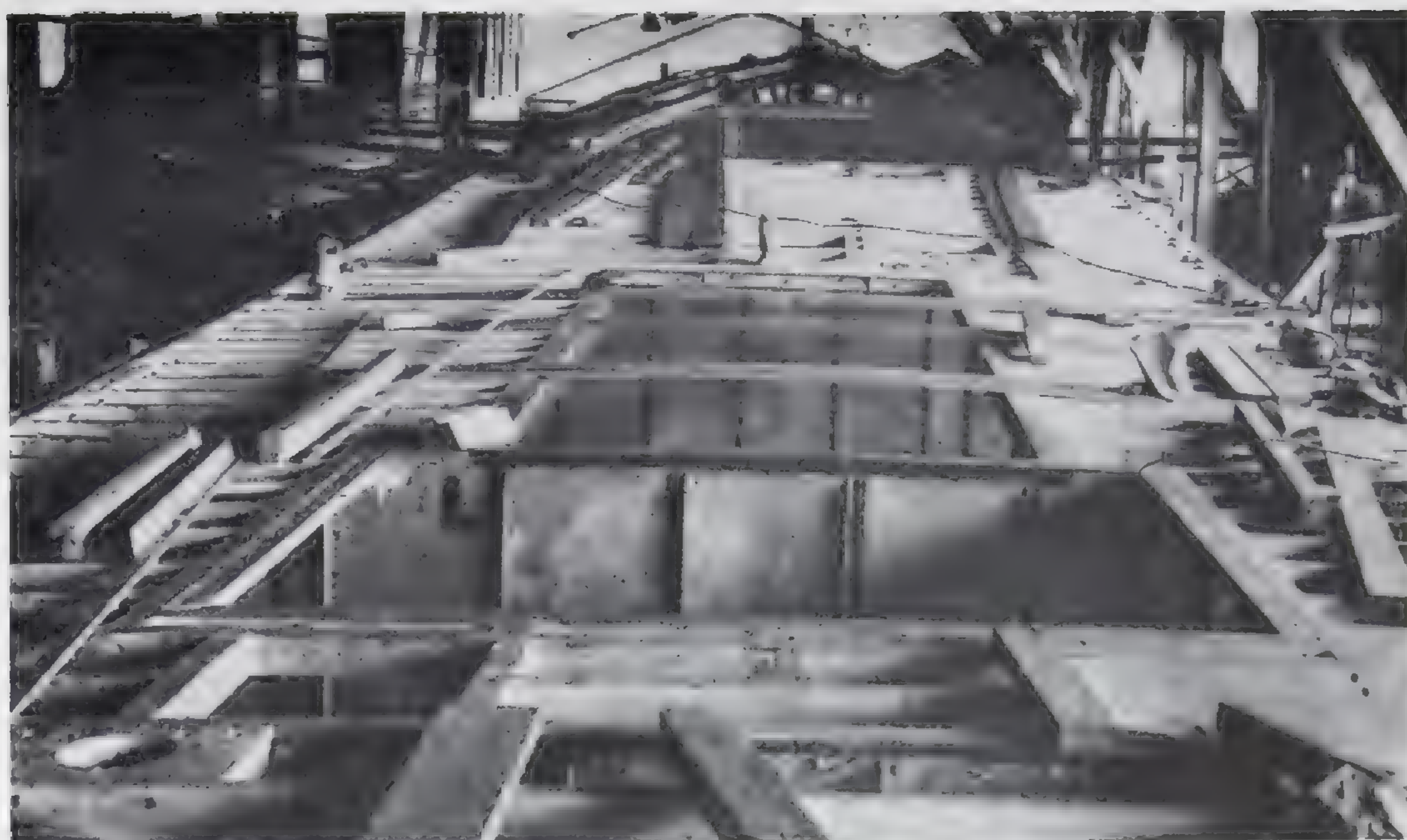
Wrought iron pipe is used on locomotives because it resists both fatigue, caused by vibration, and corrosion.



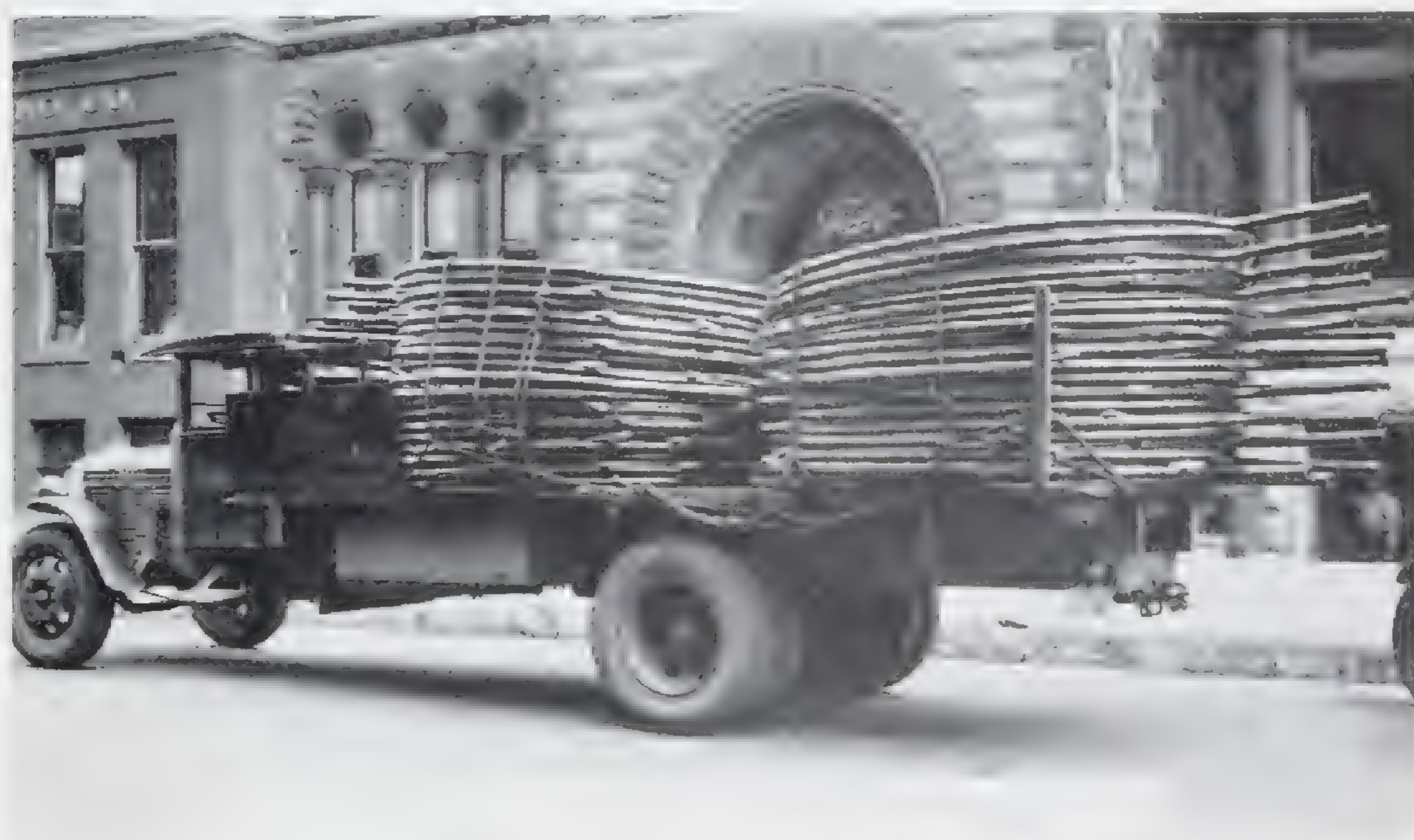
Wrought iron pipe in the new beef slaughterhouse built by Armour & Company, in Chicago.



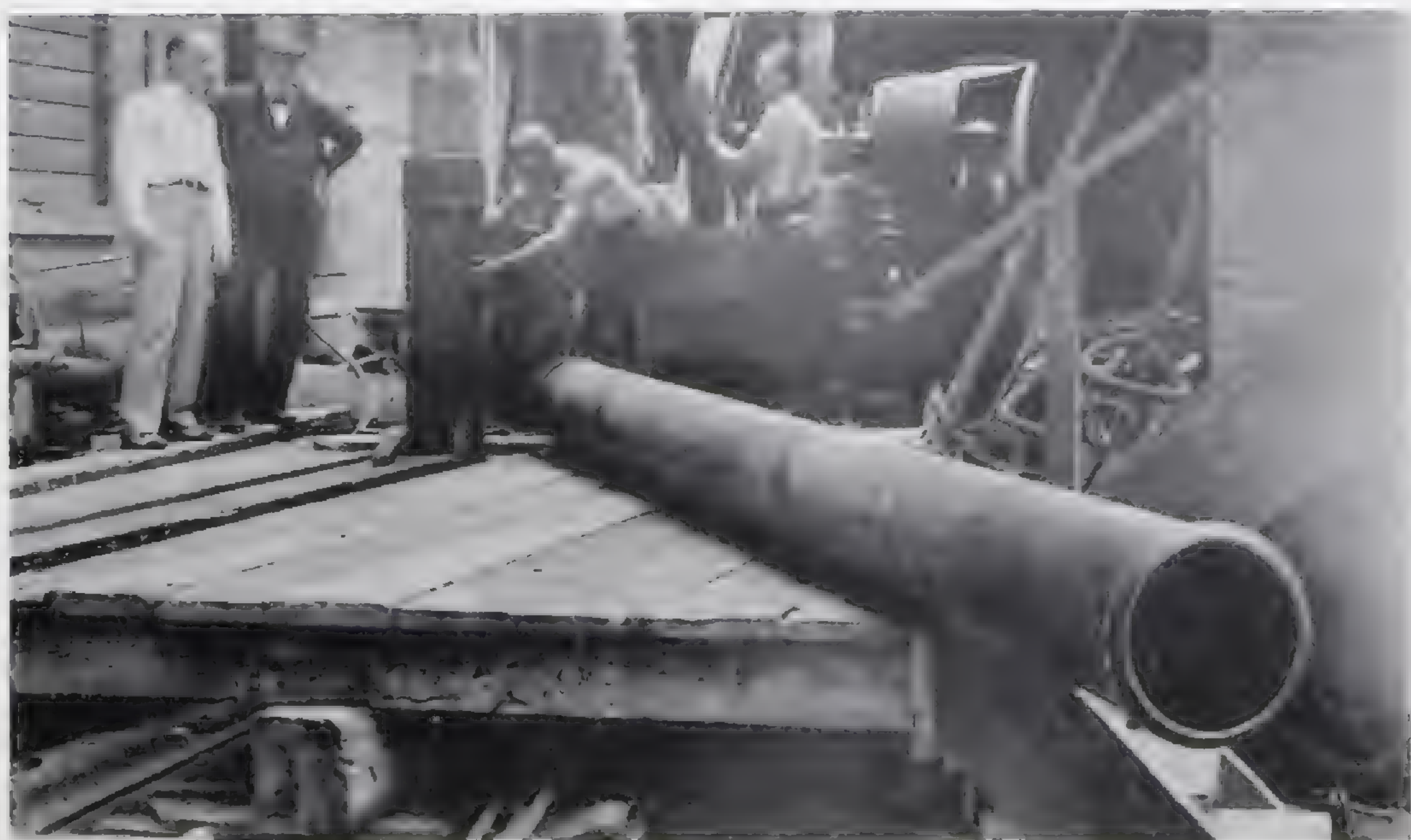
Jacking wrought iron conduit underground to carry traffic signal light cable. This installation was made at Bigelow Boulevard and Craig Street, Pittsburgh, Pa.



Water-tight bulkheads, fabricated from wrought iron sheets and angles, on one of the patrol boats built in 1936 for the U. S. Coast Guard. The stack, bridge enclosure, and wearing strips were also of wrought iron.



Attemperator coils fabricated from wrought iron pipe for Blatz Brewing Company, Milwaukee.



Wrought iron pipe being installed in a water well at the plant of Miller Brewing Company, Milwaukee. Well piping must be durable because corrosion failures are not only difficult to repair, but may permit pollution of the water supply.



Tree guard of wrought iron is one of the New York City Parks. These guards are so constructed that they can be moved to a new location.



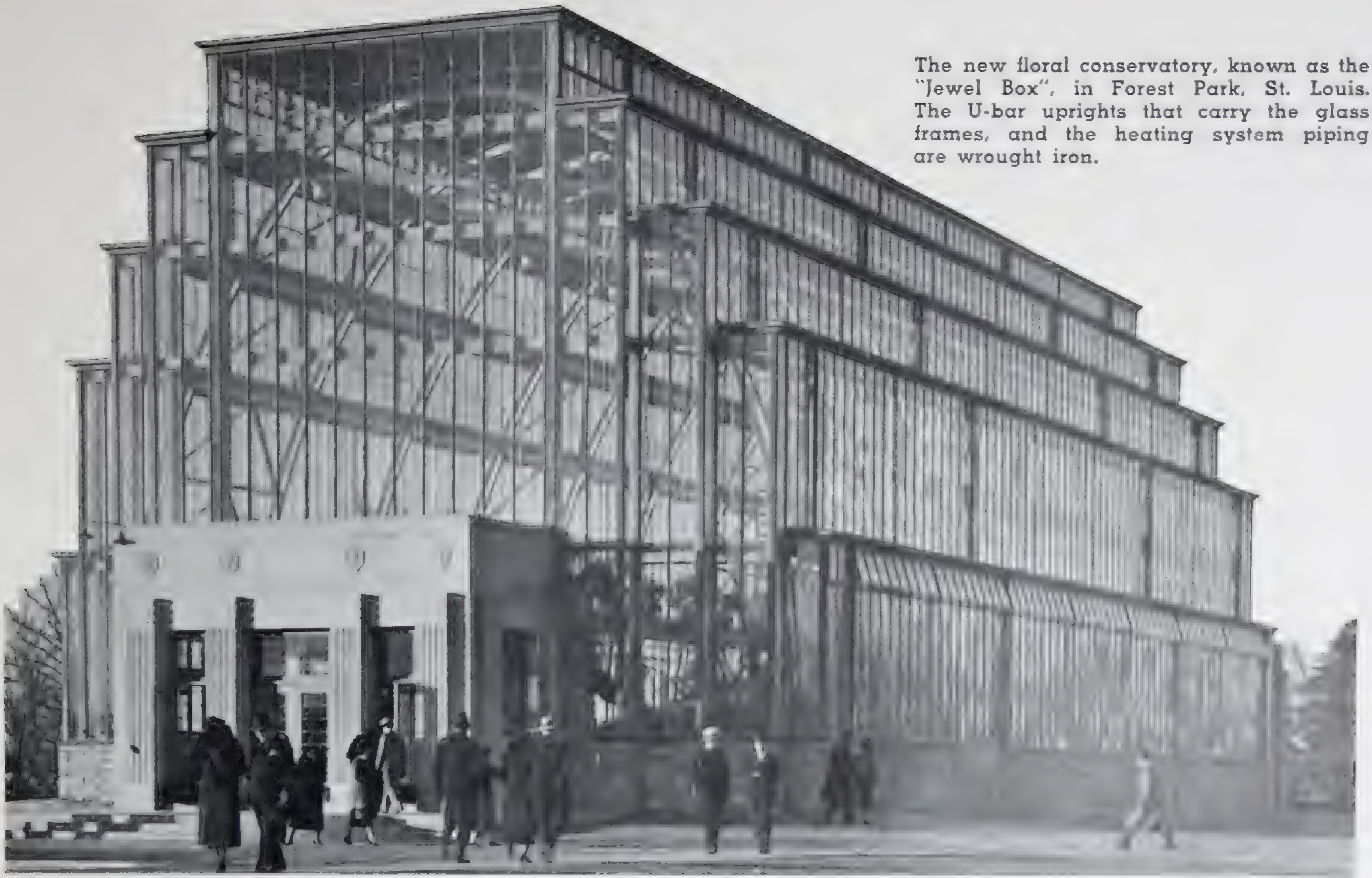
Coal elevator casing of wrought iron at The American Oak Leather Company plant, Louisville, Ky.



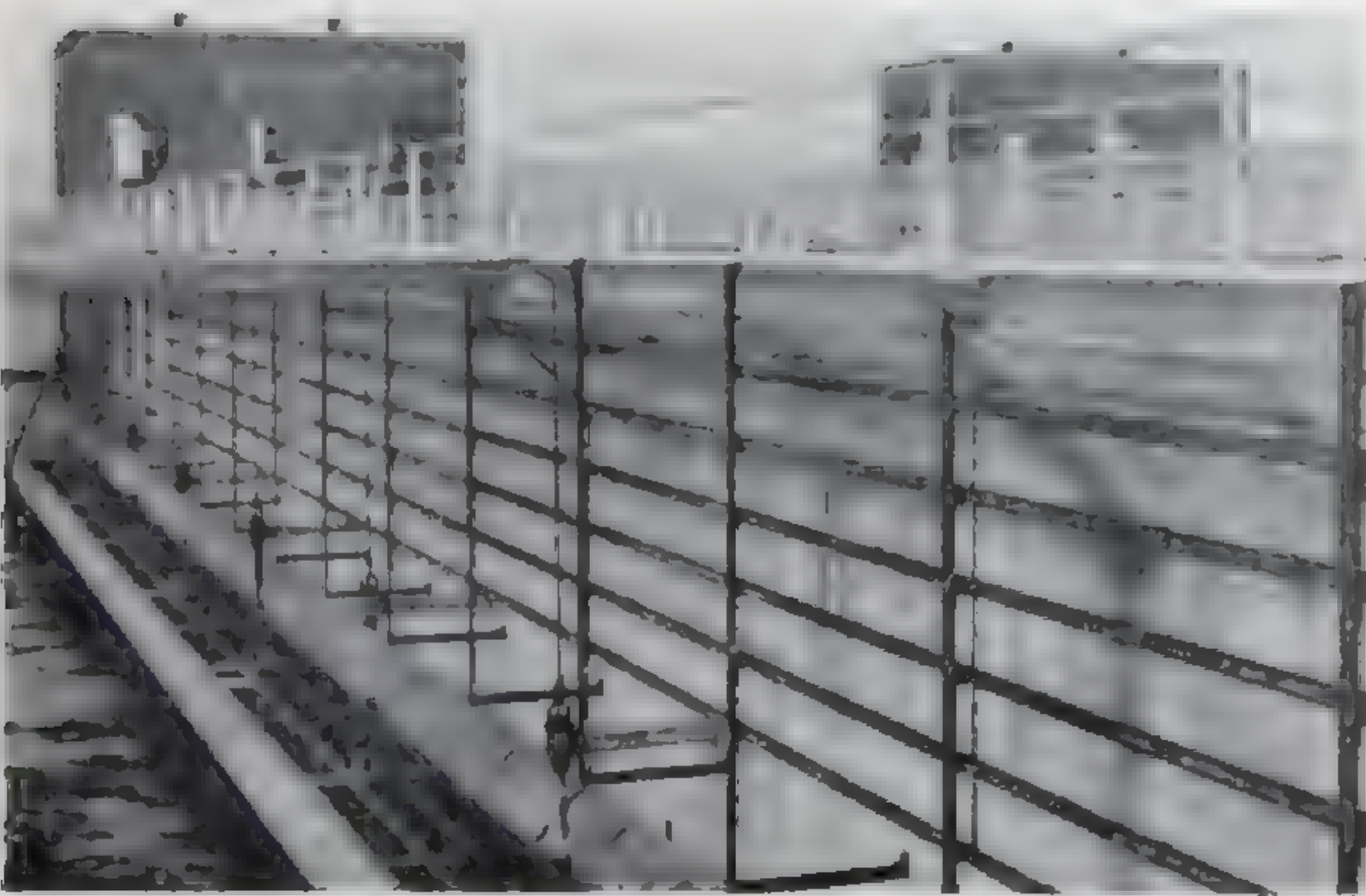
Sprinkler system piping of wrought iron in the Park Street Warehouse of the Pennsylvania Railroad, Chicago.



Rounded iron pipe railing along the boardwalk at Ocean City, New Jersey. Corrosion is severe due to salt air and salt spray.



The new floral conservatory, known as the "Jewel Box", in Forest Park, St. Louis. The U-bar uprights that carry the glass frames, and the heating system piping are wrought iron.



Gas engine jacket water-cooling coils of wrought iron pipe suspended in the aeration tanks at the activated sludge plant of The Greater Peoria Sanitary and Sewage Disposal District, Peoria, Ill. Hot water on the inside and sewage on the outside of this pipe make corrosion severe and durable metal necessary.



Wrought iron emptying valve in the river wall of Lock No. 2, Allegheny River. The filling valve is also of wrought iron.



Wrought iron piping in the new Jos. E. Seagram & Sons distillery, Louisville, Kentucky. Wrought iron is used in many services where corrosion is an important factor.



Wrought iron skin plates were used on the gates of the new dam built by the U. S. Engineers across the Ohio River at Emsworth, Pa.



Wrought iron pipe in the underground hot water heating system owned by the La Porte Gas & Electric Company, La Porte, Indiana.



Ornamental wrought iron railings at the new Tower Administration and Library Extension Building at the University of Texas, Austin.



Locomotive coaling station built by the Missouri Pacific Railroad at Myrick, Missouri. The coal bins, hoppers, and chutes are wrought iron.



Coal spouts of wrought iron in the boiler house at the Carnation Company's plant, Oconomowoc, Wisconsin. Both corrosion and abrasion influence the service life of coal-handling equipment.



Sewage sludge lines of 6" and 8" wrought iron pipe at the Dearborn, Michigan, Sewage Treatment Plant.



Hand-forged wrought iron fence around the estate of Mr. John Mabey, Tulsa, Oklahoma. Genuine wrought iron has no substitute for fine ornamental work—it offers both beauty of finish and long life.



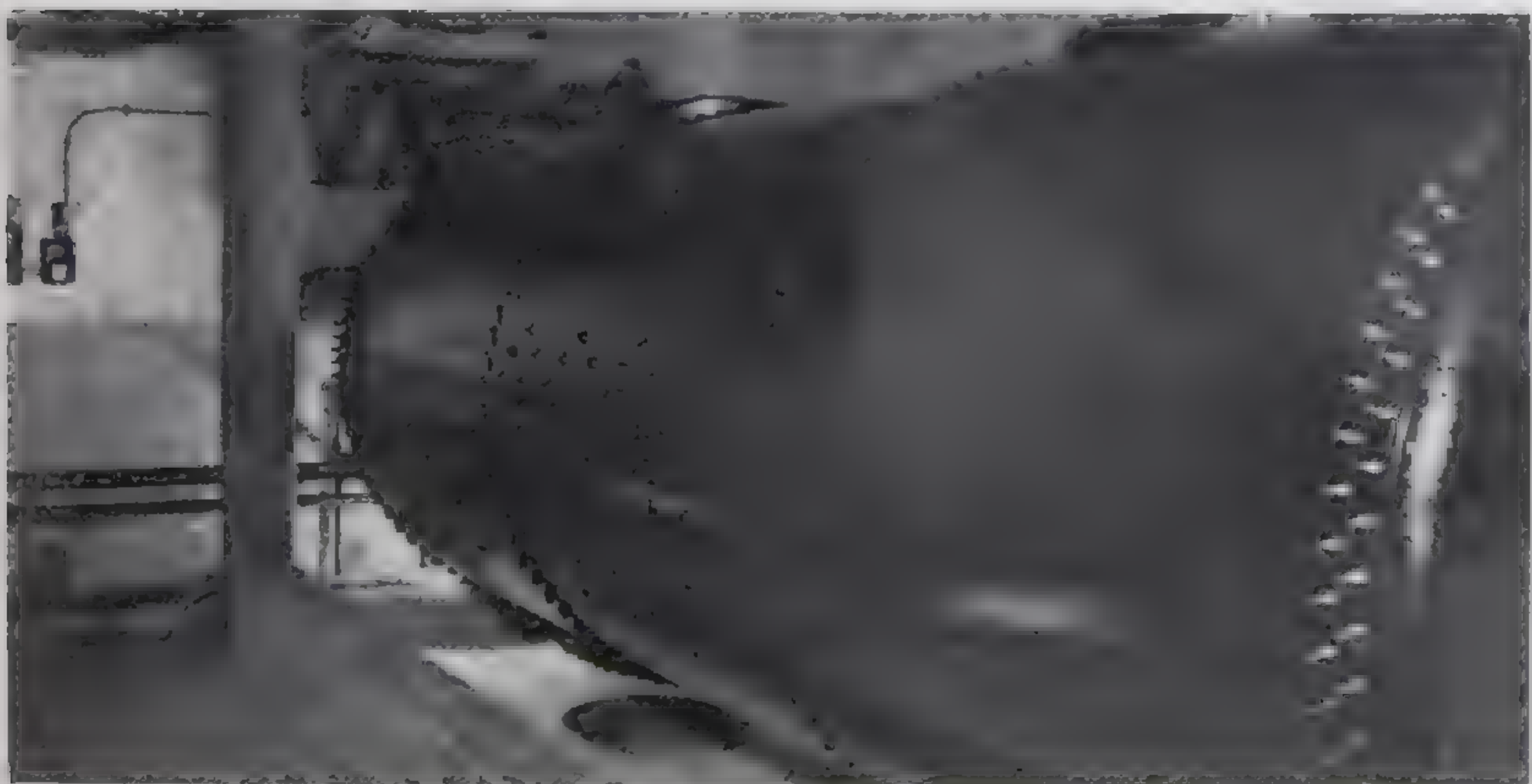
Wrought iron plate housing around the pumping unit of the mechanical screen in the comminutor basin at the Sewage Treatment Plant, Pittsfield, Mass.



Small boat pier constructed of wrought iron on the Wm. B. Stimson estate, Sutton's Island, Maine.



Air process pipe constructed of wrought iron at the Fleischmann Yeast plant of Standard Brands, Inc., Peekskill, N. Y. River water supply and return lines, city water and process water lines, and brine lines at this plant are also wrought iron.



Bleach boiler, 7' diam. x 21' long, constructed of wrought iron and recently installed at the L. L. Brown Paper Company plant, Adams, Mass. Wrought iron pipe and tanks are used extensively in the paper industry to minimize the effect of corrosion.



Culvert pipe made of corrugated wrought iron sheets being placed in service at Waterbury, Conn. Wrought iron is very desirable for this application because of its high resistance to soil corrosion.



The De Paul Hospital, St. Louis, Missouri. In this building the hot and cold water lines, all drainage lines, high and low pressure steam lines, and brine lines were specified wrought iron pipe.



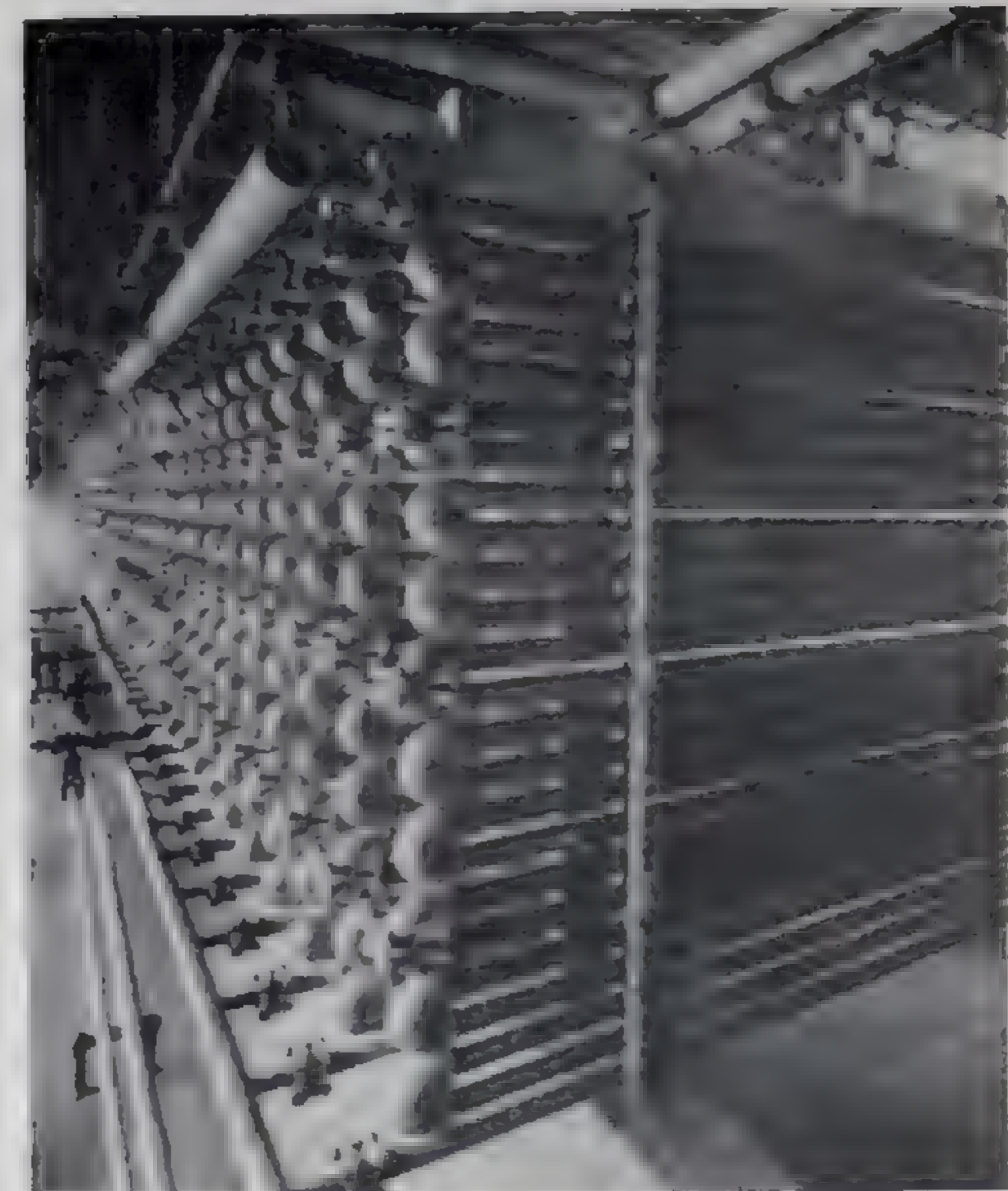
Heating lines of wrought iron pipe in underground tunnels at The Johns Hopkins University, Baltimore. Durability of pipe means reliability in a heating system.



Wrought iron "tell-tale" poles on the Staten Island Rapid Transit Railway.



Running wrought iron tubing in an oil well in one of the Oklahoma fields. Salt water, produced with oil, and hydrogen sulphide cause rapid corrosion of well equipment. Wrought iron tubing is used extensively to minimize the effect of corrosion.



Horizontal atmospheric condensers, built of wrought iron pipe, at the Chicago plant of a large meat packer.



Trash racks, fabricated by welding from wrought iron bars, angles, and channels, for the tunnel intakes at Fort Peck Dam in Montana.



Air conditioning system water lines installed using wrought iron pipe in one of the Rockefeller Center Buildings, New York City.



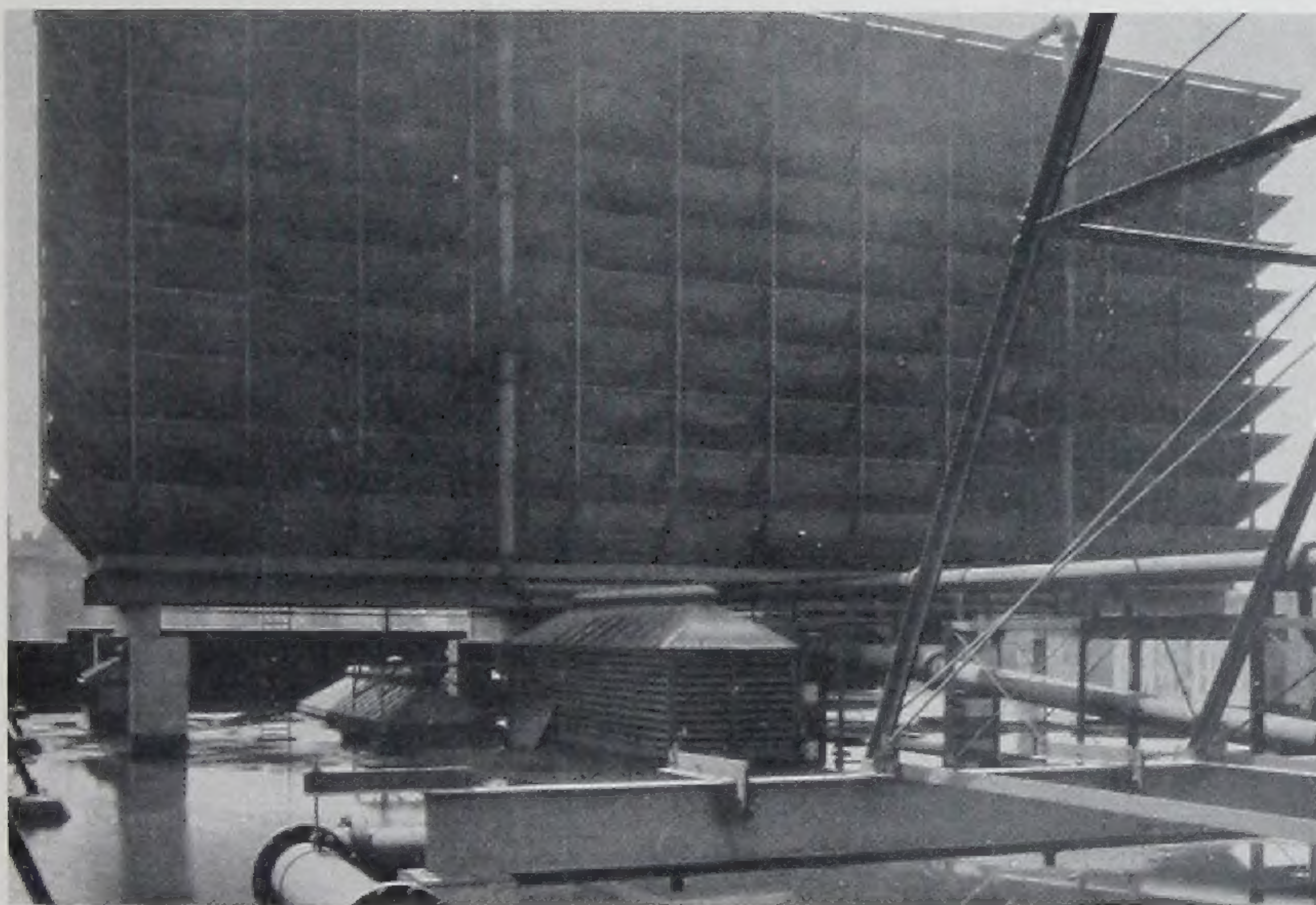
Watch-case heaters for curing tire casings at the General Tire & Rubber Company, Akron, Ohio. Steam, water, and air lines are wrought iron.



Laying a large O.D. wrought iron water line at the Wyandotte, Michigan, Power Plant.



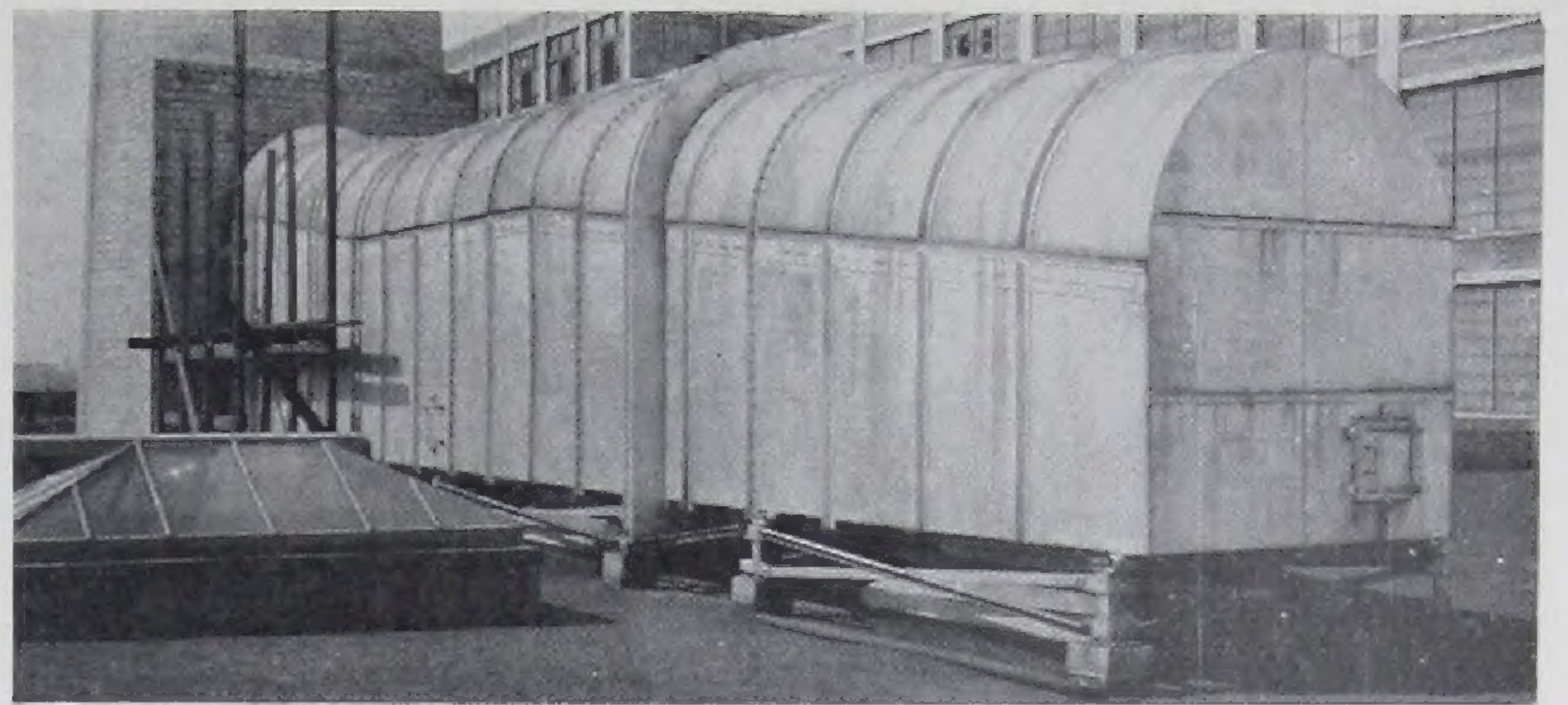
Fine residences deserve fine piping systems. The cold water, drainage, and steam heating return lines in this Rochester, N. Y., residence are wrought iron pipe.



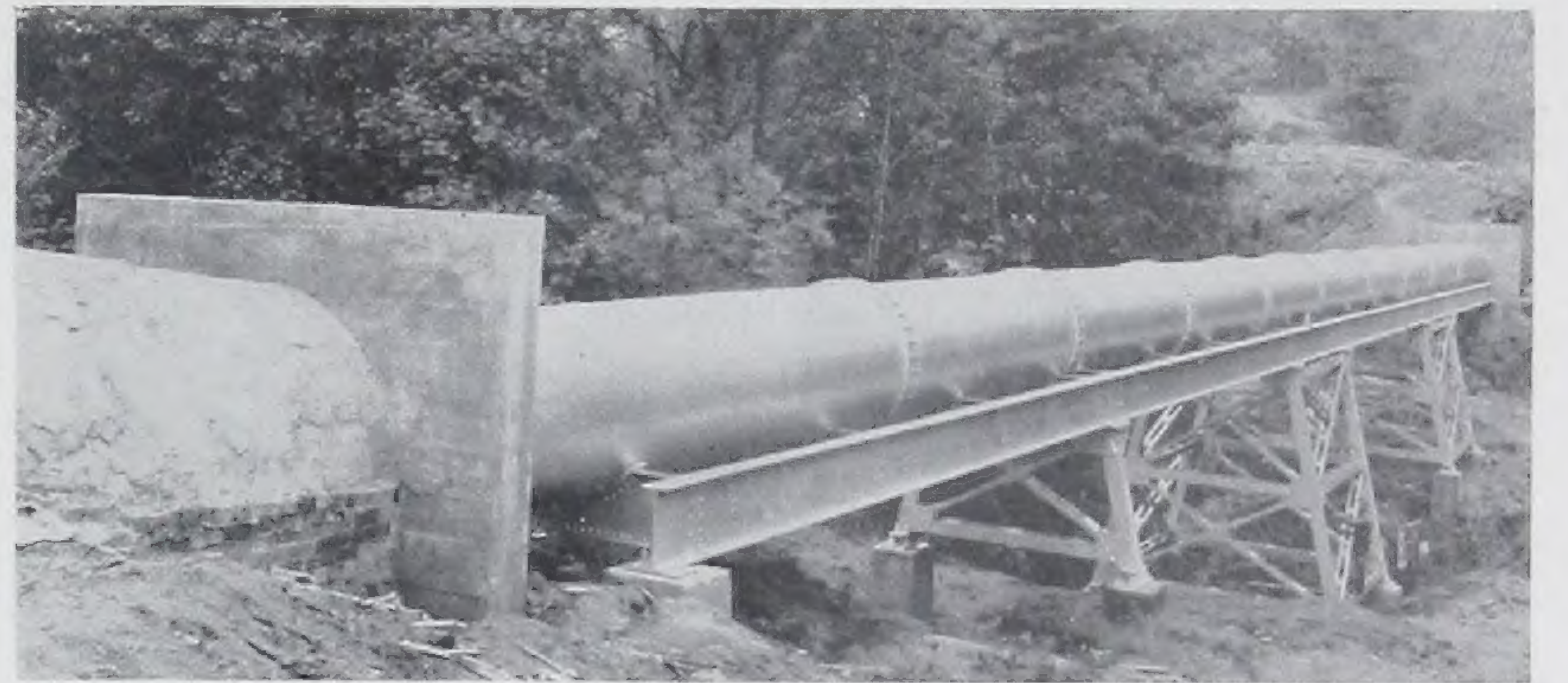
Wrought iron pipe installed in the condenser cooling-water lines leading to the cooling tower on the roof of the Reid Ice Cream Company's plant, New York City.



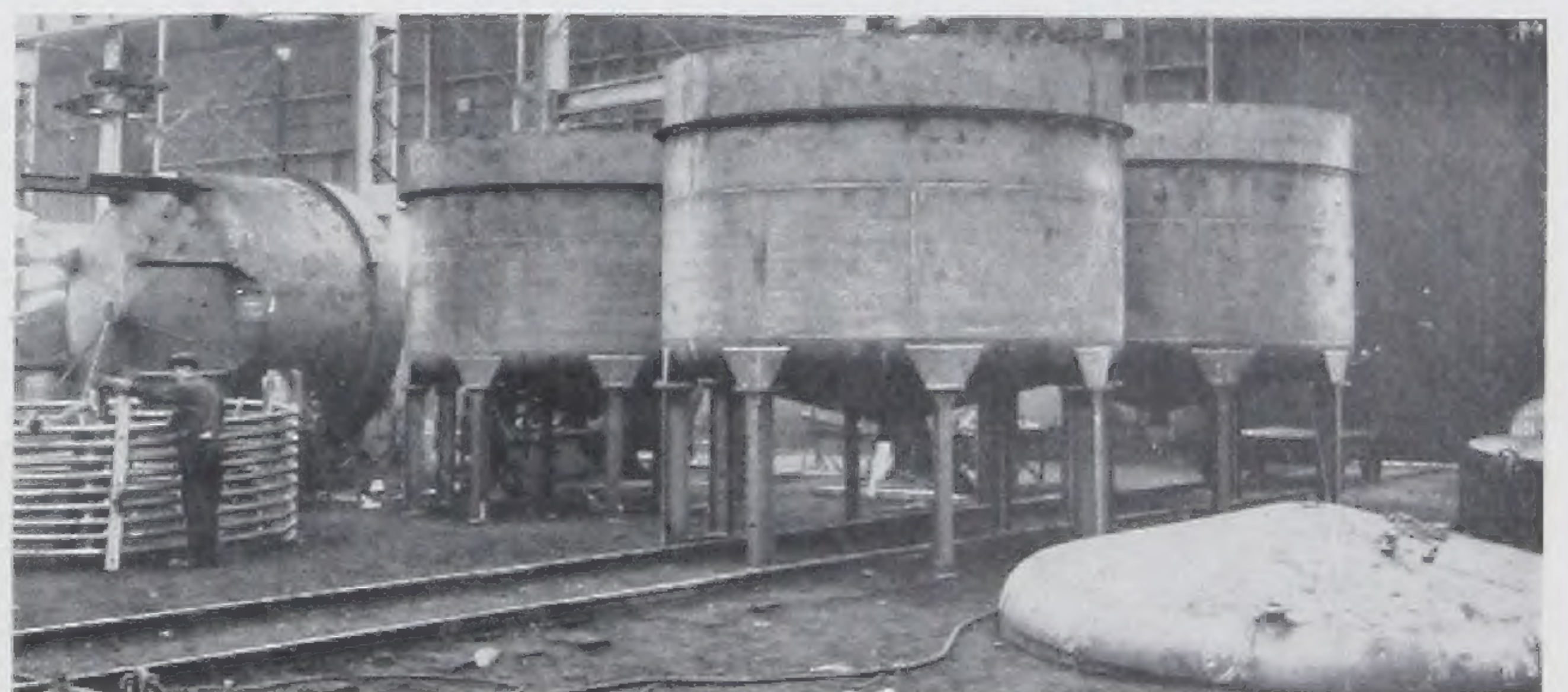
The Marquette University High School in Milwaukee has wrought iron pipe in the hot and cold water lines, rain leaders, concealed heating mains, risers, and heating return lines.



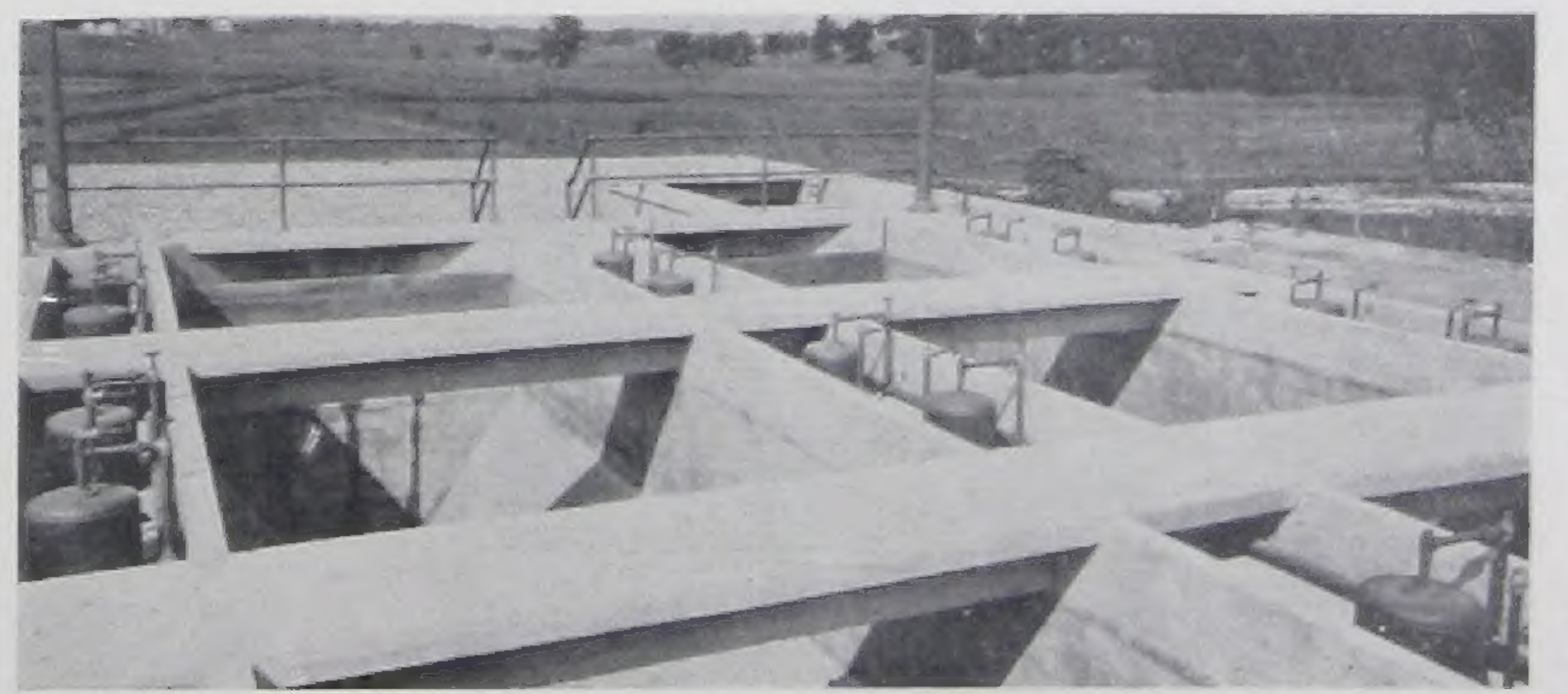
Boiler breeching constructed of wrought iron plates at the plant of W. F. Schrafft & Sons Corp., Boston. Wrought iron has a long record of service in the handling of corrosive flue gases.



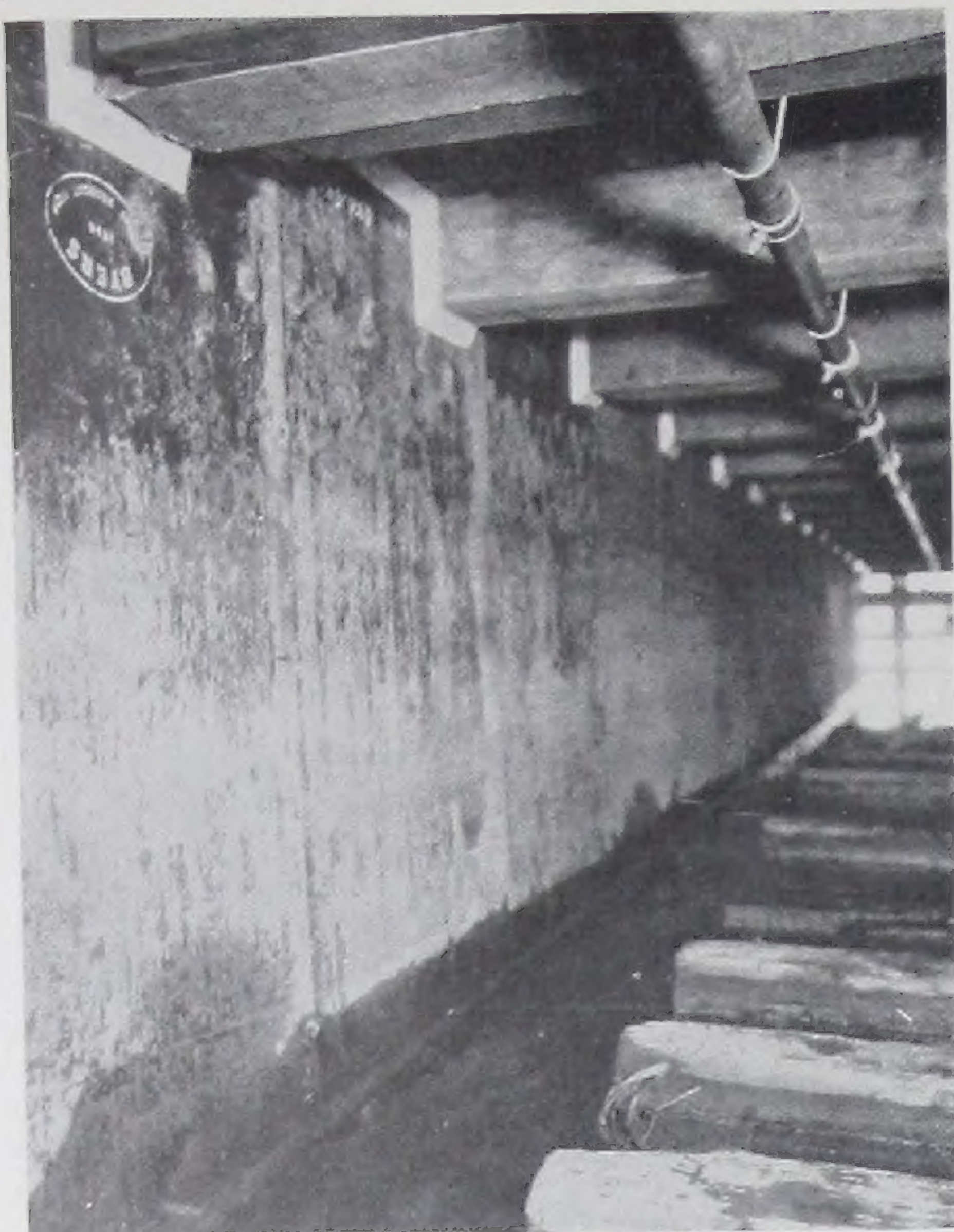
60" O.D. wrought iron pipe, installed as a part of the Big Creek Intercepting Sewer Line at Cleveland, Ohio. This line carries both domestic and strong industrial sewage to the disposal plant.



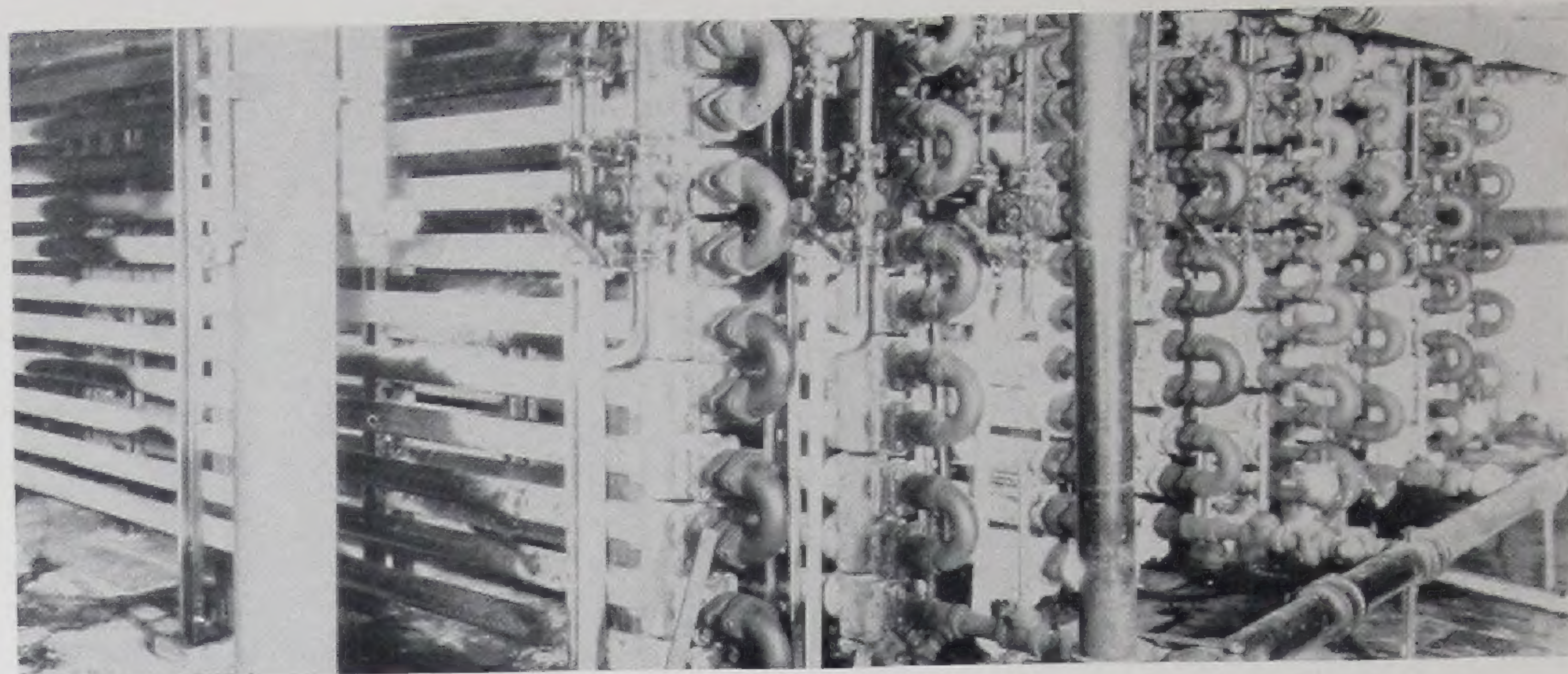
Yeast tubs of welded construction, built of wrought iron plates, for the Hiram Walker and Son's distillery, Peoria, Ill.



Sewage Gas Collection Domes installed over the gas slots in the digestion tanks at the Angola, Indiana, Sewage Disposal Plant. Sewage gas is corrosive and wrought iron is used for domes and connecting piping in many new plants.



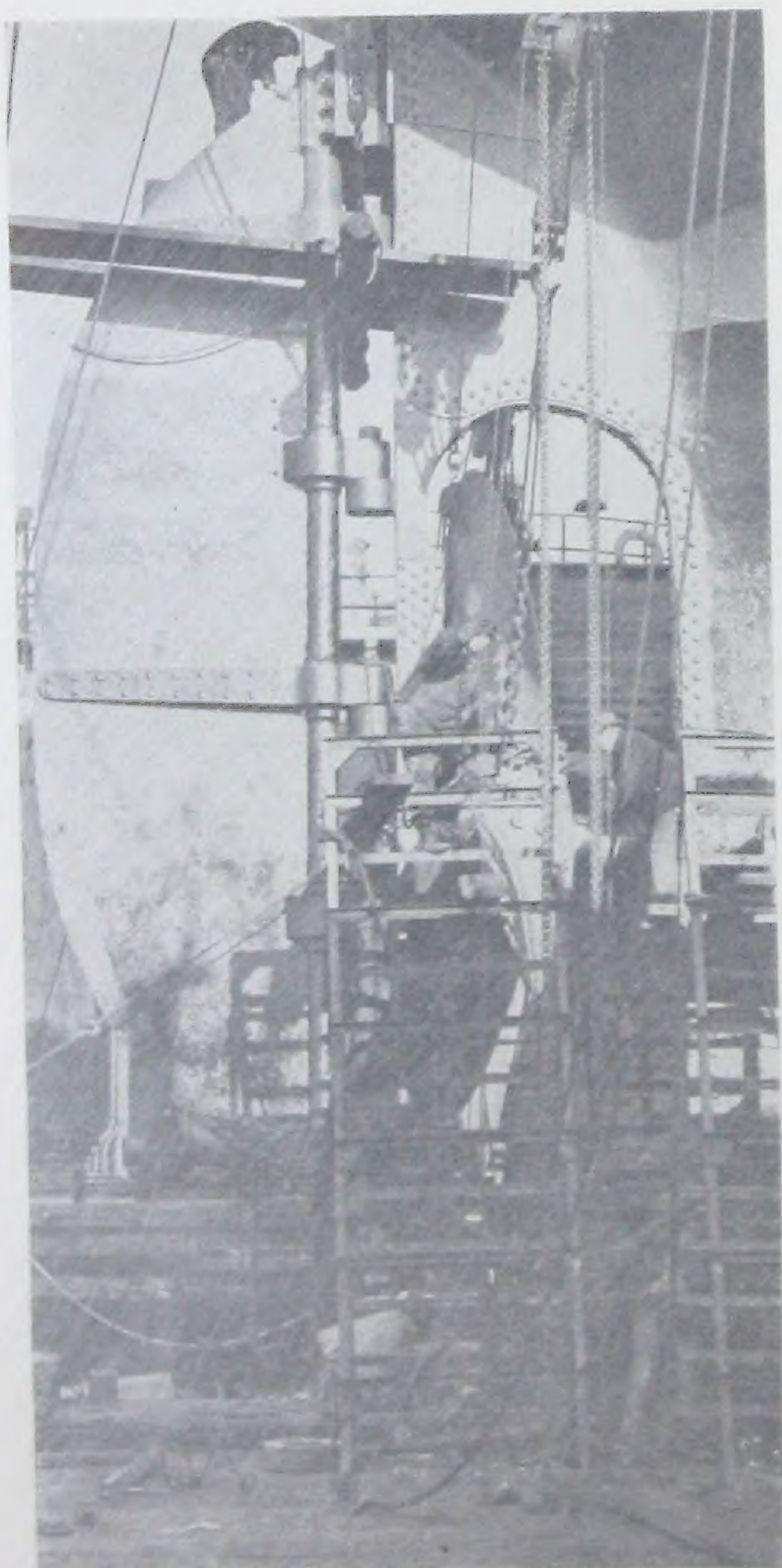
Fire screens or curtains and sprinkler system piping of wrought iron plates and pipe beneath the wood deck of the Pennsylvania Railroad's Pier No. 28, North River, New York City.



Beer cooler at the Pabst Breweries, Milwaukee. Wrought iron pipe is used for this and other refrigeration services.



Large wrought iron pipe coils fabricated for one of the large soap manufacturing plants. Wrought iron is used for many services in the soap industry.



Rudder of wrought iron plate on a tanker owned by one of the large oil companies.



Brine piping being installed in the ice skating floor at the Baker Memorial Rink, Princeton University. 45,000 feet of wrought iron pipe was used in this floor.



Laying wrought iron pipe in the lawn-sprinkling system at the Wyoming State Capitol, Cheyenne.

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Ambridge . . . Beaver County, Pennsylvania

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Houston, Texas
Niels Esperson Building

Pittsburgh, Pa.
Clark Building

New York, N. Y.
30 Rockefeller Center

St. Louis, Mo.
Arcade Building

Washington, D. C.
Shoreham Building

Philadelphia, Pa.
Girard Trust Building

San Francisco, Calif.
Rialto Building

Seattle, Wash.
Smith Tower Building